

# NORTHEAST DAIRY FARM SUMMARY

REPORT PREPARED BY:



FARM CREDIT EAST

# 2015



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# 2015

# Northeast Dairy Farm

## SUMMARY

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This report is a collaboration of Farm Credit East and Yankee Farm Credit.

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And, most importantly, the entire Farm Credit team extends our sincere thanks to the hardworking Northeast dairy farmers who entrusted their farm data to this project. We hope the end product is helpful in your continual pursuit of improved farm management. You inspire us all with the valuable work that you do.

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# HIGHLIGHTS OF THE 2015 NORTHEAST DAIRY FARM SUMMARY

- › 487 dairy farms participated in the *2015 Northeast Dairy Farm Summary*.
- › Profitability declined by 99 percent in 2015 from the prior year. Net household earnings fell to an average of \$14 per cow in 2015<sup>1</sup>, down from \$1,169 per cow in 2014. When non-farm income is subtracted, farms lost an average of \$30 per cow. Farm milk price declined by \$7.34 per hundredweight (cwt.) to \$18.24.
- › Many costs declined in 2015, but not enough to counter falling milk prices. Total expenses per cwt. decreased \$2.37 per cwt. to \$22.13 in 2015<sup>2</sup>.
- › Net cost of production<sup>3</sup> (NCOP) also declined to \$18.36 per cwt., \$2.60 below 2014.
- › Some specific operating cost categories which decreased in 2015 are:
  - Feed expense decreased from \$1,897 per cow in 2014 to \$1,733 in 2015, due to falling grain and oilseed prices.
  - Labor, a dairy farm's second largest expense, was 2.1 percent lower per cwt. due to productivity gains.
  - Fuel expenses declined by 36 percent.
- › Productivity increased. Per cow production rose by 2.5 percent. Milk sold per worker increased 2.9 percent.
- › Cash flow was insufficient to meet all financial commitments (e.g., operating expenses, debt repayment, family living and income taxes), resulting in an average cash margin per farm of -\$7,314.
- › Percent net worth fell to 72 percent. Debt-per-cow increased from \$3,354 per cow to \$3,681.

## PROFILE OF THE AVERAGE NORTHEAST DAIRY FARM

	2014	2015
Number of Cows	<b>348</b>	<b>374</b>
Milk Sold per Cow	<b>23,759 lbs.</b>	<b>24,366 lbs.</b>
Milk Sold per Worker	<b>1,102,149 lbs.</b>	<b>1,134,300 lbs.</b>
Milk Price per Cwt.	<b>\$25.58</b>	<b>\$18.24</b>
NCOP per Cwt.	<b>\$20.84</b>	<b>\$18.36</b>
Net Worth	<b>75%</b>	<b>72%</b>
Net Household Income per Cow	<b>\$1,169</b>	<b>\$14</b>
Return on Assets	<b>10.0%</b>	<b>0.8%</b>

<sup>1</sup>After family living and nonfarm income, on an accrual basis.

<sup>2</sup>Including family living.

<sup>3</sup>Total farm expense, plus family living, less non-milk income. For more information, see page 7.



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## INTRODUCTION

The purpose of Farm Credit's annual *Dairy Farm Summary (DFS)* is to assess the financial health and progress of dairy farm businesses within an eight-state area of the Northeast – New England, New York, and New Jersey. It is intended to provide dairy producers, Farm Credit personnel, Northeast public policymakers and dairy industry leaders with a better understanding of the current status and future prospects of the Northeast's largest farm industry.

As a major regional summary of actual dairy farm business results, the *Dairy Farm Summary* is a unique annual project within the U.S. dairy industry. It is the result of cooperation and hard work by many people. We are grateful, first and foremost, to the 487 dairy producers who allowed their financial and production records to be used in this study. Further, we appreciate the teamwork and timeliness of Farm Credit East and Yankee Farm Credit staff who helped customers provide that information. This report contains five years of financial data for dairy farms in Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York and Vermont<sup>4</sup>. The majority of the farms in this study are from New York.

We believe this sample of 487 farm operations represents a solid cross section of better-than-average Northeast dairy farm businesses, most of which maintain loan relationships with Farm Credit. All farms included in the study received the majority of their income from milk sales, but many farms have additional business income, such as custom work, maple sugaring or crop sales. We have purposely not excluded these farms from the sample (unless such income comprises a majority of farm income) as we feel it reflects the diversity of Northeast dairying, where many producers have supplementary income streams to increase earnings.

Where such activity constitutes a separate enterprise from the main dairy farming activity, and both revenue and expenses can be broken out, the net return is included in *Nonfarm income*. If the expenses of this ancillary activity cannot be separated from the dairy farming expenses, such revenue is included in *Other Farm Income*. Thus, the total farm income represented in this report often includes some return from these affiliated business ventures, over and above the income generated from the dairy enterprise alone.

Partnerships and corporations were adjusted to a sole proprietor basis for consistency. Farms with unusual events, such as a large expansion, a major herd-health problem, an inheritance, significant unexplained gains or losses (>10 percent of total assets) or other types of business anomalies, were excluded from the sample. Each farm's data was carefully reviewed to ensure both cash flow and net worth reconciled to within a limited margin of error. This approach ensures a high level of integrity for the financial results presented in the *2015 Dairy Farm Summary*.

The *DFS* tends to focus discussion on the "average farm." And while there is no single farm which is exactly "average," focusing on the average allows us to highlight changes of Northeast dairy farms over time. While the use of averages leads to an effective discussion with respect to change and overall industry trends, it tends to minimize both the best and worst conditions experienced by farms within the sample.

This is again true in a year such as 2015. While the "average farm" had \$14 per cow in net household earnings in 2015, nearly half the farms in our sample had negative net farm income, while a handful earned more than \$1,000 per cow. Focusing on average results belies the fact that many producers, of all sizes, still struggle to make a profit in this challenging industry. For this reason, we also look at the data within individual herd-size groups and within the top and bottom profitability groups.

<sup>4</sup> No farm data was submitted from Rhode Island.

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## CHANGES TO THE DAIRY FARM SUMMARY

This year's dairy farm summary includes farms within both Farm Credit East and Yankee Farm Credit's loan servicing areas. The 2014 data referenced in this report has been restated from the *2014 DFS* to include Vermont farms.

In the tables, the term "Net Earnings" has been changed to "Net Household Earnings" to better reflect that this figure includes family living and non-farm income.

Figure 1

## DAIRY FARM PROFITABILITY

	Net Household Earnings Per Cow <sup>1</sup>	Return on Assets <sup>2</sup>	Return on Equity <sup>3</sup>
2011	<b>\$797</b>	<b>8.4%</b>	<b>10.7%</b>
2012	<b>\$415</b>	<b>4.7%</b>	<b>5.0%</b>
2013	<b>\$490</b>	<b>4.8%</b>	<b>5.3%</b>
2014	<b>\$1,169</b>	<b>10.0%</b>	<b>13.5%</b>
2015	<b>\$14</b>	<b>0.8%</b>	<b>1.4%</b>
3-Year Average	<b>\$558</b>	<b>5.2%</b>	<b>6.7%</b>
5-Year Average	<b>\$577</b>	<b>5.7%</b>	<b>7.2%</b>

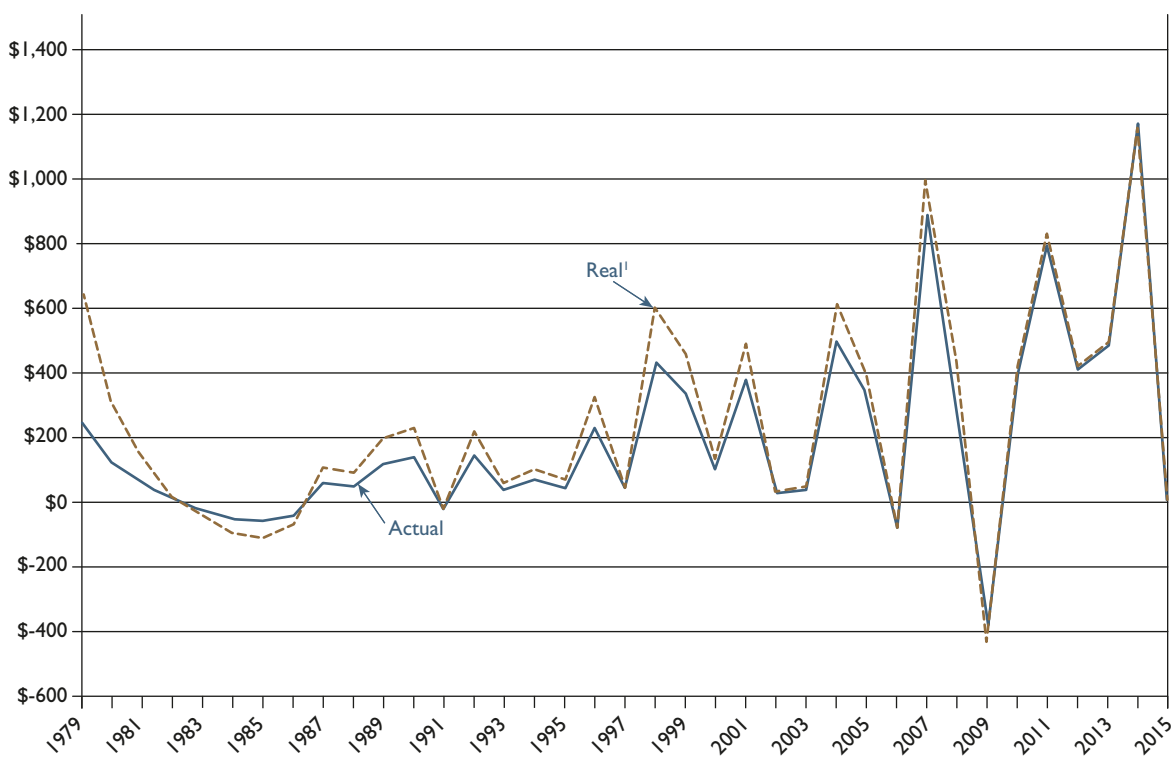
<sup>1</sup>Net household earnings includes non-farm income.

<sup>2</sup>Return on assets = (net household earnings + interest) / average total assets

<sup>3</sup>Return on equity = (net household earnings + interest) / average net worth

Figure 2

## NET HOUSEHOLD EARNINGS PER COW 1979-2015



<sup>1</sup>Real price is actual price adjusted for inflation

# Analysis of 2015

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## A CHALLENGING YEAR

In 2014, average profitability set a *DFS* record in both actual and inflation-adjusted terms, but what a difference a year makes. Even by October of 2014, milk prices had peaked and begun a steep decline. By the end of 2014, the U.S. All-Milk price had fallen by more than \$5 from its September peak and continued to decline and remain well below 2014 levels throughout 2015.

Average net household earnings fell by 99 percent to only \$14 per cow. Subtracting non-farm income from this figure yields a loss of \$30 per cow. This brings the three-year household earnings average to \$558 per cow. Many producers were able to cut expenses significantly, which helped avoid or reduce losses. Several expense line items declined, including feed costs, fuel, crop input and repairs and maintenance.

Income was down primarily due to falling milk prices. Milk price received declined by \$7.34 per cwt. to an average of \$18.24. Net cost of production decreased as well by \$2.48 per cwt. to \$18.36, still higher than the price received for milk. Thus, the only reason for the average net positive return of \$14 per cow was the addition of non-milk and non-farm income.

2015 was the least profitable year since the \$386 loss per cow in 2009. In the 36-year history of the *DFS*, 2015 ranks 29th in terms of profitability.

This summary uses three primary measures of profitability, each of which provides a useful perspective on dairy farm financial performance:

- › **Net household earnings per cow** measures sheer dollars of profit earned relative to the size of the operation and includes all sources of income, including non-farm sources.
- › **Return on assets (ROA)** measures profit earned relative to the present market value of total farm assets. This indicates the earning power of each dollar invested in the farming operation, regardless of whether it comes from the farm operator or was borrowed from a lender.
- › **Return on equity (ROE)** measures profit earned relative to the farmer's equity investment in the operation. This measure is the best indicator of how the dairy producer's investment is paying off compared to how it might pay off if invested another way.

We have often observed that a single year does not provide an accurate picture of the industry's long-term operating performance, and that is certainly still true. To further illustrate, when ranked, five of the last ten years account for both the top three years for profitability in the *DFS* history and also the bottom two. Given these extremes, multi-year averages create a more accurate picture of the industry. If we look at both a shorter- and longer-term average, we see similar results (Figure 2A). Continued year-to-year volatility confirms the challenges and opportunities that Northeast dairy producers face. Unfortunately after a very difficult 2015, dairy farmers continue to face weak prices in 2016.

Figure 2A

## COMPARISON OF MULTIYEAR AVERAGES

	Three-Year Average	Five-Year Average	Ten-Year Average
Net Earnings per Cow	<b>\$558</b>	<b>\$577</b>	<b>\$412</b>
Return on Assets	<b>5.2%</b>	<b>5.7%</b>	<b>4.9%</b>
Return on Equity	<b>6.7%</b>	<b>7.2%</b>	<b>5.4%</b>

It is important to differentiate net earnings (profit) from cash flow. Farm businesses rely on cash flow to pay ongoing bills, but cash flow is not an accurate measure of profitability. Net earnings are an accrual measure of profit, which represents a farm business's ability to provide an economic return for the operator's investment and management. It offers the most complete picture of a farm's profitability by adjusting cash farm income and expenses to reflect changes in inventories, accounts receivable, accounts payable and prepaid expenses. The difference is particularly notable in a year such as 2015, when many producers relied on savings and prepaid expenses to make ends meet on a cash basis, while incurring losses on an accrual basis.

## MILK PRICE DECLINES

The average farm milk price at \$18.24 per cwt. was nearly 30 percent less than 2014's \$25.58. It was \$3.04 below the five-year average of \$21.28/cwt. (Figure 3A). In terms of actual (nominal dollars, not adjusted for inflation) milk prices, 2015 ranked 7th in the 35 years of the *DFS*. However, to better understand the true story of how milk prices have changed over time, we must account for the impact of inflation (Figure 3B). In terms of "real," inflation-adjusted rankings, 2015 drops to 30th. The first year of the *DFS*, 1979, ranks first.

Figure 3A

### FARM MILK PRICES PER CWT.

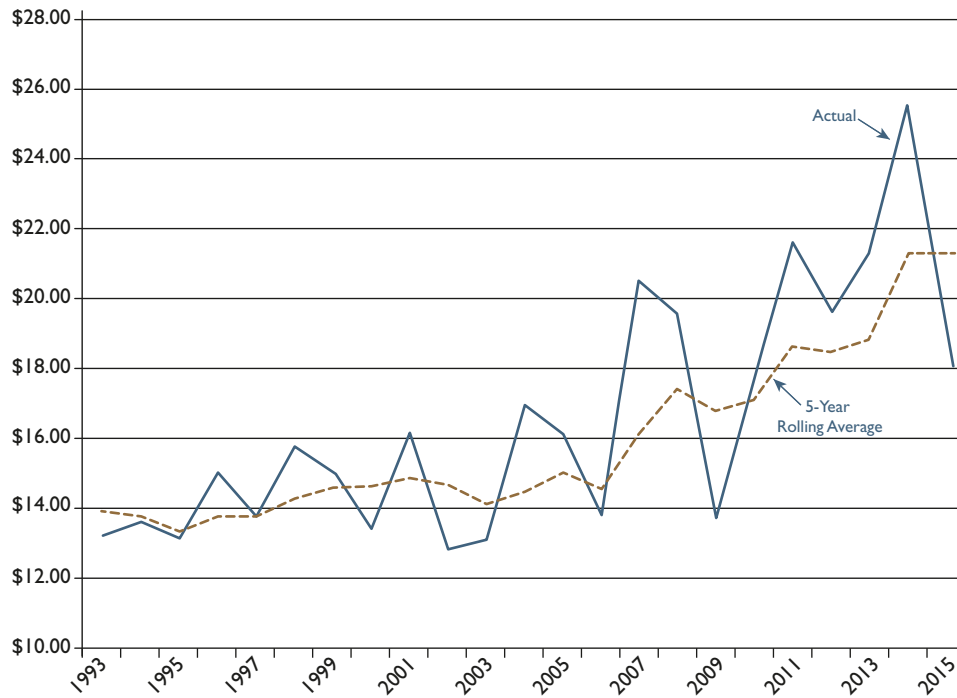
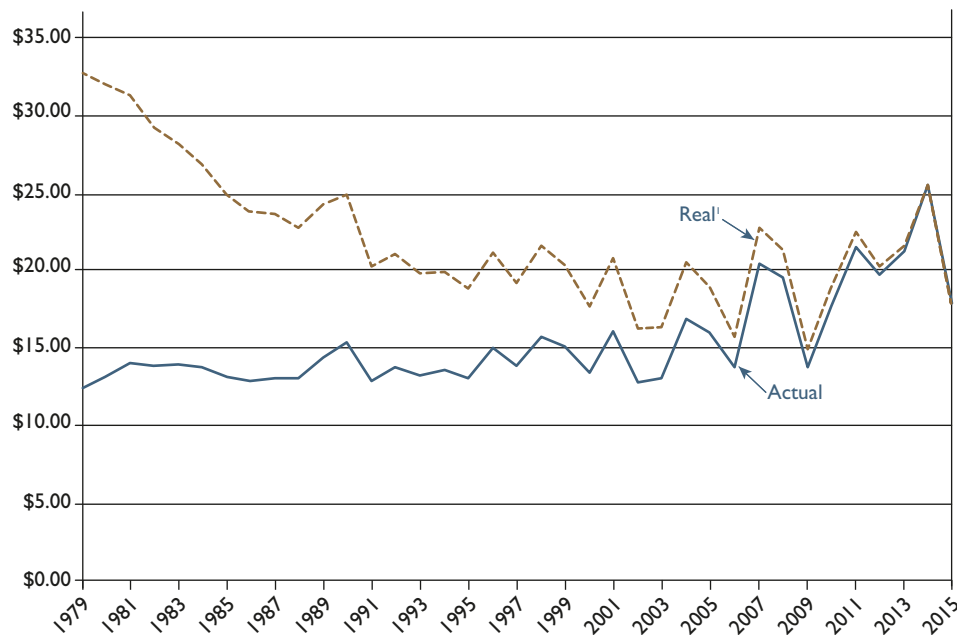


Figure 3B

### FARM MILK PRICES PER CWT.



<sup>1</sup>Real = actual price adjusted for inflation, 2015 dollars.

The Federal Milk Marketing Order One statistical uniform price began 2015 at \$17.57/cwt (Boston blend). The price then declined to \$16.40 in March before recovering to \$18.32 in November. The price fell again in December, to end the year at \$17.27. The average Boston blend price for 2015 was \$17.14. Several factors have contributed to increased milk price volatility in recent years. Changes in export markets and domestic demand as well as shifts in supply affect prices. Increased global market activity has quickened the pace by which production is required to adjust, further contributing to price volatility. Investment decisions should include an analysis of management's ability to cope with price and earnings volatility.

## COST OF PRODUCTION DECLINES DUE TO BELT-TIGHTENING

The net cost of production (NCOP) declined from 2014's record high of \$20.84 per cwt., falling by 12 percent to \$18.36. Three key figures to review for 2015's cost of production analysis of the average dairy farm in the DFS include:

- › Cash operating expenses were \$20.00 per cwt., 10.2 percent lower than 2014.
- › Total costs, including depreciation and family living, were \$22.13 per cwt., down \$2.37.
- › After subtracting non-milk income, NCOP was \$18.36 per cwt., \$2.48 below the previous year.
- › An increase in non-milk income in 2015 contributed to the decrease in NCOP<sup>5</sup>.

Figure 4A

## COST OF PRODUCING MILK - ACCRUAL BASIS

	2011	2012	2013	2014	2015
Feed	<b>\$6.79</b>	<b>\$7.61</b>	<b>\$7.75</b>	<b>\$7.99</b>	<b>\$7.12</b>
Labor	<b>2.97</b>	<b>3.11</b>	<b>3.09</b>	<b>3.34</b>	<b>3.27</b>
Interest	<b>0.52</b>	<b>0.50</b>	<b>0.49</b>	<b>0.48</b>	<b>0.47</b>
Freight & Trucking	<b>0.87</b>	<b>0.95</b>	<b>0.95</b>	<b>0.95</b>	<b>0.97</b>
Crop	<b>1.28</b>	<b>1.54</b>	<b>1.61</b>	<b>1.64</b>	<b>1.40</b>
Other Expenses	<b>6.87</b>	<b>6.78</b>	<b>6.74</b>	<b>7.86</b>	<b>6.77</b>
Adjusted Cash Operating Expenses	<b>\$19.29</b>	<b>\$20.49</b>	<b>\$20.63</b>	<b>\$22.26</b>	<b>\$20.00</b>
+ Depreciation	<b>1.33</b>	<b>1.34</b>	<b>1.43</b>	<b>1.49</b>	<b>1.44</b>
+ Family Living	<b>0.69</b>	<b>0.64</b>	<b>0.76</b>	<b>0.75</b>	<b>0.69</b>
Total Costs	<b>\$21.31</b>	<b>\$22.47</b>	<b>\$22.82</b>	<b>\$24.50</b>	<b>\$22.13</b>
- Non-Milk Income*	<b>3.21</b>	<b>4.24</b>	<b>3.59</b>	<b>3.66</b>	<b>3.77</b>
Net Cost of Production**	<b>\$18.10</b>	<b>\$18.23</b>	<b>\$19.23</b>	<b>\$20.84</b>	<b>\$18.36</b>

\*Non-milk income includes cattle, crop and other income adjusted for inventory changes.

\*\*Before any return on equity. Each 1 percent return on equity would be equivalent to another \$0.40 added to the NCOP for 2015.

<sup>5</sup>Nonfarm income is not factored into NCOP.

Given the sharply reduced milk prices in 2015, Northeast dairy producers engaged in significant cost cutting. This was helped by declines in feed commodities and energy costs. Producers spent an average of 8.6 percent less on feed per cow in 2015 than they did the prior year. They also realized significant savings in fuel costs, spending an average of 35.7 percent less per cow in 2015.

Other categories with decreases include repairs, supplies and crop inputs. Some of this was driven by falling prices of certain inputs, such as fuel, while other declines were driven by producers' attempts to spend less and economize given their reduced income. Presumably Northeast dairy producers utilized some of their 2014 profits to catch up on deferred maintenance that they had put off in prior years as well as make some improvements to facilities, as repair expenses increased to \$421 per cow in 2014 after averaging \$285 for the previous five years. While repairs declined to \$350 per cow in 2015, this level is still considerably higher than the five year average.

Figure 4B

## SPECIFIC COST CATEGORIES

	2014		2015		Percent Change	
	per Cow	per Cwt.	per Cow	per Cwt.	per Cow	per Cwt.
Feed	\$1,897	\$7.99	\$1,733	\$7.12	-8.6%	-10.9%
Labor	\$791	\$3.34	\$797	\$3.27	0.8%	-2.1%
Fuel	\$258	\$1.08	\$166	\$0.68	-35.7%	-37.0%
Supplies	\$295	\$1.25	\$287	\$1.18	-2.7%	-5.6%
Rent	\$107	\$0.45	\$110	\$0.45	2.8%	0.0%
Repairs	\$410	\$1.73	\$350	\$1.43	-14.6%	-17.3%
Crop Inputs	\$388	\$1.64	\$339	\$1.40	-12.6%	-14.6%
Other Expenses	\$1,487	\$6.27	\$1,444	\$5.91	-2.9%	-5.7%

Analysts differ in their opinions as to how to calculate Net Cost of Production (NCOP) and what should be included. The formula used in the *DFS* for calculating NCOP is as follows:

[Cash Operating Expenses (with accrual adjustments made for pre-pays, accounts payable, etc) + Calculated Depreciation<sup>6</sup> + Family Living Expense] - Non-Milk Farm Income<sup>7</sup> = Net Cost of Production.

It is important to note that the \$18.36 average NCOP includes no return on the producer's equity investment. While it may be debatable what an appropriate return on equity (ROE) might be, earning some level of return should be a business objective. For the average *DFS* producer in 2015, each one percent return on equity is equivalent to an additional \$0.40 per cwt. If we were to include a six percent ROE goal, for example, this would be equivalent to a \$20.76 net cost of production. In 2015, the actual milk price was far below that goal, and producers realized only an average 1.4 percent ROE.

<sup>6</sup>For the *DFS*, all farms have their submitted depreciation restated by applying a standard percentage of straight-line depreciation to various asset classes in order to be able to compare consistent numbers from year to year and avoid variations driven by accounting and changes in tax laws.

<sup>7</sup>Non-milk income includes cattle, crop and other income adjusted for inventory changes.



Figure 4C compares NCOP between New York and New England in 2015. New York producers typically have an advantage in lower costs and higher production per cow over producers in New England. Additionally, with the ability to grow more feed, New York farms generally have higher crop sales and are able to grow more grain. However, Connecticut, Maine and Massachusetts have state support programs for dairy farmers, which help supplement farm income. Income from these support programs is included under “Government Payments” in the tables in the back of the report, and reduces their NCOP. Even taking support programs into account, New York farms’ NCOP was still \$1.12 per cwt. lower than New England farms.

Figure 4C

## NCOP BY REGION 2015

Cost per CWT.	New York	New England
Feed	<b>\$6.94</b>	<b>\$7.53</b>
Labor	<b>3.23</b>	<b>3.40</b>
Interest	<b>0.50</b>	<b>0.43</b>
Freight & Trucking	<b>0.96</b>	<b>0.99</b>
Crop Inputs	<b>1.44</b>	<b>1.31</b>
Other Expenses	<b><u>6.80</u></b>	<b><u>6.75</u></b>
Adjusted Cash Operating Expenses	<b>\$19.87</b>	<b>\$20.41</b>
+ Depreciation	<b>1.39</b>	<b>1.56</b>
+ Family Living	<b><u>0.68</u></b>	<b><u>0.70</u></b>
Total Costs	<b>\$21.95</b>	<b>\$22.67</b>
- Non-milk Income	<b><u>3.80</u></b>	<b><u>3.40</u></b>
Net Cost of Production	<b>\$18.15</b>	<b>\$ 19.27</b>

Figure 4D shows NCOP by herd size. Generally, larger herds have an advantage in spreading costs over more units, driving per-unit costs down. Smaller herds have lower labor costs and higher non-milk income per unit; however, family living and other costs are usually higher, when expressed on a per-unit basis. Some of the herds with fewer than 100 cows were among the most profitable in the study due to their low labor costs, even when family living expenses are accounted for. This may understate the true value of the family labor put into the farm, but on paper, several of them showed healthy net returns.

Figure 4D

## NCOP BY HERD SIZE

Cost per CWT.	< 100 Cows 122 farms	100-299 Cows 180 farms	300-699 Cows 107 farms	700+ Cows 78 farms
Feed	<b>\$6.55</b>	<b>\$6.74</b>	<b>\$6.96</b>	<b>\$7.32</b>
Labor	<b>1.85</b>	<b>3.05</b>	<b>3.35</b>	<b>3.38</b>
Interest	<b>0.64</b>	<b>0.52</b>	<b>0.44</b>	<b>0.46</b>
Freight & Trucking	<b>1.05</b>	<b>1.02</b>	<b>0.93</b>	<b>0.97</b>
Crop Inputs	<b>1.78</b>	<b>1.52</b>	<b>1.43</b>	<b>1.31</b>
Other Expenses	<b>8.05</b>	<b>7.00</b>	<b>6.58</b>	<b>6.71</b>
Adjusted Cash Operating Expenses	<b>\$19.93</b>	<b>\$19.85</b>	<b>\$19.69</b>	<b>\$20.15</b>
+ Depreciation	<b>2.63</b>	<b>1.95</b>	<b>1.40</b>	<b>1.22</b>
+ Family Living	<b>2.66</b>	<b>1.45</b>	<b>0.68</b>	<b>0.33</b>
Total Costs	<b>\$25.21</b>	<b>\$23.25</b>	<b>\$21.77</b>	<b>\$21.70</b>
- Non-Milk Income*	<b>6.23</b>	<b>3.66</b>	<b>3.54</b>	<b>3.31</b>
Net Cost of Production	<b>\$18.99</b>	<b>\$19.59</b>	<b>\$18.22</b>	<b>\$18.39</b>

\*Non-milk income includes cattle, crop and other income adjusted for inventory changes.

In an industry noted for volatile milk prices, the ability to control expenditures, improve efficiency and adjust to changing input costs is critical to a dairy producer's financial performance.

## HERD SIZE CHANGES

The farms that participate in the *Dairy Farm Summary* change slightly from year-to-year. The average number of cows per farm typically hovers between 300 and 400 milking head in the *DFS*, even as average farm size has increased in the region. The *DFS* average increased from 348 head in 2014 to 374 in 2015.

As shown in Figure 5A, the largest size group remains responsible for the greatest percentage of milk production, and that percentage is increasing.

Figure 5A

## FARM SIZE AND MILK PRODUCTION

	99 Cows or Fewer	100-299 Cows	300-699 Cows	700 Cows or More
Number of Farms	<b>122</b>	<b>180</b>	<b>107</b>	<b>78</b>
Volume of Milk Produced <sup>1</sup>	<b>3.7%</b>	<b>15.8%</b>	<b>28.4%</b>	<b>52.1%</b>

<sup>1</sup>As a percent of all farms in the 2015 DFS

Figure 5B illustrates the relationship between labor productivity, cow productivity and overall dairy farm profitability. As more cows are handled per worker, milk sold per worker increases. Milk sold per worker and per cow are closely correlated. More milk per cow is favorable in terms of greater productivity and total production and also drives gross revenue, a key factor in profitability.

While milk sold per cow correlates positively with adjusted net earnings per cow, more important is a low NCOP, which is enhanced by better labor efficiency. Figure 5B also shows increasing labor and family living expenses as milk sold per worker increases. Farms with higher labor efficiency tend to have a lower cost per cwt. for labor and family living. For example, those farms selling less than 500,000 pounds of milk per worker have the lowest average combined labor and family living expense per person at \$20,580, but on a per cwt. basis, their cost is \$5.18 per cwt. In contrast, those selling 1.4 million or more pounds of milk per person have a lower labor and family living cost, or \$3.31 per cwt. despite paying more than 2.6 times more per person. Thus the efficiency gained also allows for greater flexibility with respect to employee compensation and family living draws. Note that while adjusted net earnings per cow generally trends higher with increased labor productivity, there are some inconsistencies from one group to the next, such as between the 700,000+ pounds category and the 800,000+ category, indicating that labor productivity is only one factor in determining overall profitability.

Figure 5B

## LABOR PRODUCTIVITY INFLUENCES PROFITS

Pounds of Milk Sold per Worker	Percent of Farms	Number of Cows	Cows per Worker	Milk Sold per Cow	Avg. Labor & Family Living Per Person <sup>1</sup>	Adjusted Net Earnings Per Cow <sup>2</sup>
499,000 or less	<b>9%</b>	<b>69</b>	<b>22</b>	<b>17,757</b>	<b>\$20,580</b>	<b>\$-204</b>
500,000-599,000	<b>6%</b>	<b>96</b>	<b>29</b>	<b>18,850</b>	<b>\$23,834</b>	<b>\$-252</b>
600,000-699,000	<b>9%</b>	<b>120</b>	<b>32</b>	<b>20,334</b>	<b>\$30,275</b>	<b>\$-244</b>
700,000-799,000	<b>9%</b>	<b>162</b>	<b>36</b>	<b>20,803</b>	<b>\$32,765</b>	<b>\$-27</b>
800,000-899,000	<b>10%</b>	<b>253</b>	<b>36</b>	<b>22,725</b>	<b>\$36,550</b>	<b>\$-82</b>
900,000-999,000	<b>10%</b>	<b>318</b>	<b>39</b>	<b>23,876</b>	<b>\$41,201</b>	<b>\$98</b>
1 to 1.09 million	<b>9%</b>	<b>535</b>	<b>42</b>	<b>24,101</b>	<b>\$42,184</b>	<b>\$-30</b>
1.1 to 1.19 million	<b>8%</b>	<b>629</b>	<b>47</b>	<b>23,633</b>	<b>\$42,314</b>	<b>\$20</b>
1.2 to 1.39 million	<b>14%</b>	<b>597</b>	<b>52</b>	<b>24,219</b>	<b>\$48,978</b>	<b>\$85</b>
1.4 million or more	<b>14%</b>	<b>648</b>	<b>67</b>	<b>24,675</b>	<b>\$54,489</b>	<b>\$120</b>

<sup>1</sup> Includes operator and other family labor

<sup>2</sup> Net earnings per cow less net nonfarm income

When viewed on a per cow, or per cwt. basis, larger farms are able to spread costs and investments over more units. For example, the 99 cows or fewer group produced almost 50 percent less milk per worker than the average of all farms and had 83 percent more investment per cwt. sold (\$97 versus \$53). Return on assets was poor for all groups, though the 700 or more cows group had the highest return on assets.

Figure 6

## CAPITAL EFFICIENCY

Herd Size (No. of Cows)	Pounds Sold Per Worker	Pounds Sold Per Cow	Total Assets Per Cwt. Sold <sup>1</sup>	Asset Turnover (Years) <sup>2</sup>	Return on Assets <sup>3</sup>
99 or Fewer	<b>583,449</b>	<b>19,957</b>	<b>\$97</b>	<b>0.25</b>	<b>0.8%</b>
100 to 299	<b>933,327</b>	<b>22,225</b>	<b>\$71</b>	<b>0.31</b>	<b>-0.6%</b>
300 to 699	<b>1,159,492</b>	<b>24,423</b>	<b>\$53</b>	<b>0.40</b>	<b>0.4%</b>
700 or More	<b>1,292,340</b>	<b>25,482</b>	<b>\$46</b>	<b>0.47</b>	<b>1.5%</b>
All Farms	<b>1,134,300</b>	<b>24,366</b>	<b>\$53</b>	<b>0.41</b>	<b>0.8%</b>

<sup>1</sup> Total assets / cwt. of milk sold

<sup>2</sup> Total assets / cash receipts = number of years

<sup>3</sup> Return on assets = (net earnings + interest) / average farm assets

## CASH FLOW WEAKENS

Cash flow is another measure of financial health for a dairy operation or any business. Each business has a minimum cash requirement to meet its ongoing commitments, such as operating costs, overhead, debt principal payments and family living. What remains can be used for capital investment, to build liquidity or to invest in a retirement fund. Cash margin declined in 2015 to a deficit of \$0.08 per cwt., down from +\$4.87 in 2014 (Figure 7). This is the lowest cash margin since 2009's deficit of \$2.22 per cwt.

Figure 7

### CASH FLOW ANALYSIS PER CWT.

	2011	2012	2013	2014	2015
Actual Milk Price	\$21.53	\$19.74	\$21.30	\$25.58	\$18.24
Cash Required	\$21.36	\$22.09	\$22.77	\$24.25	\$22.14
- Other Income	3.26	3.91	3.57	3.54	3.81
Breakeven Milk Price	\$18.10	\$18.18	\$19.19	\$20.71	\$18.32
Cash Margin	\$3.43	\$1.56	\$2.11	\$4.87	\$-0.08

Cash Margin Definitions	
Total cash operating expenses	Cattle sales
+ Family living expense and income tax	+ Capital sales
+ Scheduled principal payments	+ Crop sales
	+ Other farm & non-farm income
<hr/> = Cash required	<hr/> = Other income

Figure 7 shows cash margins that the average dairy farm in the summary has experienced since 2011. Cash margins have exhibited substantial volatility during this time. Due to the substantial inflation of farm costs in recent years, the breakeven milk price has increased significantly from approximately \$14 per cwt., which was common prior to 2007. Milk prices have also increased, on average, in recent years, setting new records in 2011 and 2014. In 2015, the milk price received declined sharply, while the breakeven milk price fell by a lesser amount, resulting in a deficit.

Given the high level of volatility in the dairy industry, making a financial decision based on a single year's performance would be dangerous. Figure 7 further illustrates this point: Cash margins in 2011 and 2014 were very strong, while margins in 2012, 2013 and 2015 were much lower.

This level of variability makes financial management more challenging, stressing the importance of a long-range view of cash flow. Timing of major capital expenditures, managing debt load, building liquidity for the tight years and adjusting family withdrawals are all means of managing volatility. Some producers have adopted risk management strategies involving both input costs and milk prices using a combination of crop insurance-type government programs as well as hedging strategies.

## CAPITAL DEBT EXCEEDS DEBT CAPACITY

Debt capacity measures the maximum amount of capital debt a farmer could repay from cash generated from the farm business and nonfarm sources. It is determined primarily by cash flow and, to a lesser extent, by interest rates. Reserve debt capacity is the difference between debt capacity and the actual amount of capital debt invested in the business. It is a buffer against financial adversity which could occur within the business, such as herd health problems or crop failure, or from the marketplace, such as low milk prices or high feed costs. It represents the amount by which capital debt can be increased above existing levels and still be repaid from that year's cash flow. In 2015, weak farm earnings provided inadequate cash flow to service all financial obligations for many *DFS* farms, requiring some to take on additional debt (Figure 8). No additional reserve debt capacity remained in 2015 for the average *DFS* farm.

Figure 8

### DEBT CAPACITY

	2011	2012	2013	2014	2015
Average Farm Credit Interest Rate <sup>1</sup>					
Commercial (Intermediate Term)	4.1%	4.0%	4.0%	4.0%	4.0%
Real Estate (Long Term)	4.5%	4.4%	4.3%	4.3%	4.3%
Debt Capacity (per Cow)	\$8,074	\$5,322	\$6,108	\$11,384	\$3,361
- Capital Debt	2,939	3,080	3,104	3,109	3,390
RESERVE DEBT CAPACITY (per Cow)	\$5,135	\$2,242	\$3,004	\$8,275	\$-29
3-Year Average Reserve Debt Capacity <sup>2</sup>	\$1,119	\$3,007	\$3,460	\$4,507	\$3,750
5-Year Average Reserve Debt Capacity <sup>2</sup>	\$2,118	\$1,549	\$1,721	\$4,060	\$3,725
Debt Payments as Percent of Milk Sales	11%	13%	12%	7%	13%

<sup>1</sup> Average interest rates for outstanding debt with Farm Credit, excluding benefit of patronage dividends.

<sup>2</sup> Averages include pre-2011 data.

The current debt capacity is substantially impacted by historically low interest rates, which continued during 2015. In planning for the future, it is important not to be lulled into thinking that today's low interest rates will last indefinitely. The Federal Reserve has already begun to increase short-term rates and this will impact debt service requirements and capacity for those producers who have variable rate debt. If the average producer had to repay today's debt at 2007

interest rates (7.7 percent and 7.6 percent), it would reduce both debt capacity and reserve debt capacity by about \$1,500 per cow, a major change in repayment capacity.

Figure 8 shows the five-year average for reserve debt capacity. In 2015, it was \$3,725 per cow, a high level heavily influenced by 2014's remarkable profitability. "Never borrow your last dollar during a good year" is time-tested financial wisdom in the farming community. The implication is that a prudent borrower preserves significant liquidity in terms of unused borrowing capacity to fall back on during years of low income or other adversity. The spending restraint showed by many producers in 2014 will help them cope during this extended downturn in milk prices.

Figure 8 shows Northeast dairy farmers and their Farm Credit lenders have taken this advice to heart during the post-2000 period in terms of maintaining a healthy level of reserve debt capacity. During 2009, when Northeast dairy farmers had little cash flow capacity to repay debt, farmers and their lenders were better positioned to get through this difficult year than in other parts of the country where both farmers and lenders struggled. The lessons learned from that downturn influenced producers to use 2014 profits to shore up their financial position going into 2015. This year, 2016, brings greater concern as the low milk price environment continues, while farmers have largely exhausted their cash reserves.

In today's increasingly volatile dairy business climate, liquidity is a critical factor to achieve long-term business viability and financial flexibility to deal with tough years. Whether cash in a savings account, prepaid expenses, inventories that can be quickly turned into cash or substantial unused capacity on one's line of credit, strong liquidity is critical to dairy business success. It remains to be seen when the dairy industry's fortunes will recover. In the meantime, managing liquidity and cash flow during an extended downturn will be critical for survival.

## PRODUCERS TRIM CAPITAL PURCHASES

Northeast dairy farmers' capital spending reverted to close to the five-year average in 2015 (Figure 9). The majority of capital purchases were for replacement machinery and equipment, with some buildings and land expansion. Total capital purchases per farm were \$304,062, just above the five-year average of \$287,697. While the average capital purchases were \$813 per cow, it should be noted that this represents expansion investments (some of which were planned in 2014) by some more profitable farms, and substantially lower spending by others.

In addition to reduced capital purchases, Northeast producers also cut back on annual repairs and maintenance expense in 2015 compared to 2014.

*Figure 9*

### CAPITAL PURCHASES

	Per Farm	Per Cow	% of Total Assets <sup>1</sup>
2011	\$246,890	\$757	5.6%
2012	\$265,825	\$775	7.1%
2013	\$256,095	\$813	6.5%
2014	\$365,612	\$1,066	7.9%
2015	\$304,062	\$813	6.2%
3-Year Average	\$308,590	\$897	6.9%
5-Year Average	\$287,697	\$845	6.7%

<sup>1</sup> Capital purchases as a percent of total assets show an approximate rate of reinvestment in the farm enterprise.



Figure 10 shows a cash flow statement on a per-cow basis for the average Northeast dairy producer in the study. It includes sources and use of cash for the business, including what was available to cover capital purchases.

Figure 10

## CASH SOURCES AND USE STATEMENT

	2011	2012	2013	2014	2015
<b>Sources</b>					
	Dollars per Cow				
Net Farm Income <sup>1</sup>	\$916	\$613	\$617	\$1,555	\$449
Net Nonfarm Income	41	44	57	45	42
Sale of Capital Assets	50	58	59	50	67
Paid-in Capital <sup>2</sup>	18	42	33	33	40
Money Borrowed	329	589	703	66	847
<b>TOTAL SOURCES</b>	<b>\$1,354</b>	<b>\$,346</b>	<b>\$1,469</b>	<b>\$1,749</b>	<b>\$1,445</b>
<b>Uses</b>					
Family Living	\$160	\$150	\$180	\$178	\$166
Capital Purchases	778	775	813	1,089	813
Debt Principal Payments	416	421	476	482	466
<b>TOTAL USES</b>	<b>\$1,354</b>	<b>\$1,346</b>	<b>\$1,469</b>	<b>\$1,749</b>	<b>\$1,445</b>
Percent Capital Purchases Financed <sup>3</sup>	42%	76%	86%	6%	104%

<sup>1</sup> Cash basis — No accrual adjustment to expenses

<sup>2</sup> Includes savings withdrawn, gifts, inheritances, grants, debt forgiven, and other extraordinary income

<sup>3</sup> Money borrowed / capital purchases

Total sources of cash fell by \$304 in 2015 to \$1,445 per cow. Net cash farm income fell by more than 70 percent from 2014, to \$449 per cow. This required producers to finance capital purchases (and some operating expenses) by taking on additional debt. Producers were generally able to meet loan servicing requirements during the year, but many sought additional financing or extended trade credit, so net debt per cow increased.

## BALANCE SHEETS WEAKEN

Net worth, or owner's equity, measures the wealth of the farm business owner. It is measured at each year's end in the *DFS* in order to accurately compare changes. Net worth is an indicator of the ability of the business to absorb financial losses and to collateralize additional borrowing. It is also a measure of the amount of money that could be redeployed toward other endeavors if the business were liquidated.

The average *DFS* dairy farmer's net worth in 2015 declined by \$813 to \$9,397 per cow from \$10,210 in 2014. Percent net worth also decreased to 72 percent (Figure 11). Nonetheless, solvency remains solid for the average *DFS* farm, meaning that the average *DFS* participant would have more than enough farm assets to liquidate, in order to satisfy all farm debts, selling fees and resulting income tax liability and leave a cash surplus.

Figure 11

## CHANGE IN FINANCIAL POSITION

	Change in NW per Cow	Percent Net Worth <sup>1</sup>	Current Ratio <sup>2</sup>	Quick Ratio <sup>3</sup>	Asset Turnover <sup>4</sup>
2011	\$1,087	72%	2.8	1.2	0.52
2012	\$-367	72%	2.8	1.2	0.52
2013	\$1,351	73%	2.8	1.2	0.48
2014	\$1,048	75%	3.5	1.6	0.53
2015	\$-813	72%	2.8	1.1	0.50

<sup>1</sup> Percent net worth = Owner's net worth / total assets

<sup>2</sup> Current ratio = Current assets / current liabilities

<sup>3</sup> Quick ratio = Current assets - inventory / current liabilities

<sup>4</sup> Asset turnover = Value of farm production / average total assets

There is an important distinction between growth in net worth resulting from earnings versus market revaluation. Net earnings are the result of profits from dairy farming. Market revaluation generally occurs in farm real estate and cattle, while machinery and equipment ordinarily depreciate.

In 2014 livestock values increased significantly to \$2,397 per milking head (Table A-3). This was reflective of both the high milk price environment as well as high beef prices. Given that both milk and beef prices fell in 2015, livestock values declined as well to \$2,372 per cow. The average *DFS* farm raises a relatively large amount of replacement heifers as reflected in youngstock as a percent of cows.

Liquidity is the ability of the farm operator to convert short-term assets (current assets) to cash to meet short-term obligations (current liabilities) as they become due. Its importance cannot be overstated in a volatile industry, such as dairy. Current and quick ratios are two measures of liquidity. In 2015, the average dairy farm had a current ratio of 2.8, reverting to the mean of years prior to 2014 (Figure 11). Savings from 2014, a high level of prepaid expenses, and sufficient feed inventories relative to current liabilities helped maintain this ratio.

However, since inventory on a dairy farm is primarily feed for onfarm use and not intended to be directly converted into cash to pay bills, subtracting inventory from the current ratio produces the quick ratio and provides a closer look at a dairy farm's true liquidity situation. The quick ratio of 1.1 at the end of the year demonstrates that the average farm maintained sufficient current assets to meet financial obligations. This indicates that producers had, on average, 110 percent of the value of short-term liabilities available in cash or assets that could be quickly converted to cash.

Finally, asset turnover is commonly used to measure the efficiency of total capital invested in the business by determining gross revenue dollars generated for every dollar invested. The higher the asset turnover ratio, the more efficiently the

investment is working for the business. Thus greater asset turnover should translate into a higher return on assets (ROA). In 2015, asset turnover for the average Northeast dairy business was 0.50, down from prior years. This was largely a result of the decrease in milk prices. This means \$0.50 of gross revenue was generated for every \$1 invested in assets.

## NET MARGIN DIFFERENCES REMAIN SIGNIFICANT IN 2015

We again saw a wide range of profits around the \$14 per cow average in 2015. Many farms had negative net income, while a few posted more than a \$1,000 profit per cow. Figure 12 demonstrates the range of profitability between the top, bottom and all farms profit groups. Farms in the summary are ranked by profit margin and divided into four quartiles.

Figure 12

### RANGE OF 2015 PROFITS

	Bottom 25%	All Farms	Top 25%
Number of Farms	121	487	122
Average Number of Cows	340	374	366
Milk Sold per Cow (lbs.)	23,866	24,366	25,068
Milk Sold per Worker (lbs.)	1,030,140	1,134,300	1,230,631
<b>Net Earnings</b>			
Per Farm	\$-83,300	\$5,236	\$106,506
Per Cow	\$-245	\$14	\$291
Per Cwt.	\$-1.03	\$0.06	\$1.16
Return on Assets <sup>1</sup>	-0.9%	0.8%	2.5%
Return on Equity <sup>1</sup>	-1.0%	1.4%	3.3%

<sup>1</sup> ROA and ROE calculations do not include asset appreciation.

There was a \$536 difference in net earnings per cow between the top and bottom quartile groups. This is less than 2014's difference, which stood at \$993. Similarly, on a per cwt. basis, the top farms posted \$2.19 more in net earnings than the least profitable farms with earnings of \$1.16/cwt., while the bottom group lost \$1.03 per cwt. Several management factors contribute to this disparity. Also shown in Figure 12 are two productivity measures: Milk Sold per Worker and Milk Sold per Cow. The Top 25 percent group sold 5 percent more milk per cow and 19 percent more milk per worker than the Bottom 25 percent, which contributes to the disparity in the bottom line.

Interestingly, the average herd size of the top profit quartile was lower than that of the group overall. Some of the most profitable farms on a per cow basis were found at both the high and low end of herd sizes. The large herd dairy farms were able to capitalize on economies of scale, while some of the small herd farms were able to keep a tight rein on expenses and utilize family labor. When combined together, the result was a lower average herd size. The group that had the lowest profitability was not the small farm group, but those between 100 and 299 cows.

Another area where the top profit group excels is NCOP. Figure 13 shows the difference in the cost of producing milk between the most and least profitable groups. The difference between the two came to \$1.87 per cwt. in 2015, which is narrower than the average difference of the preceding five years.

Figure 13

## COST OF PRODUCING MILK BY PROFIT GROUPS

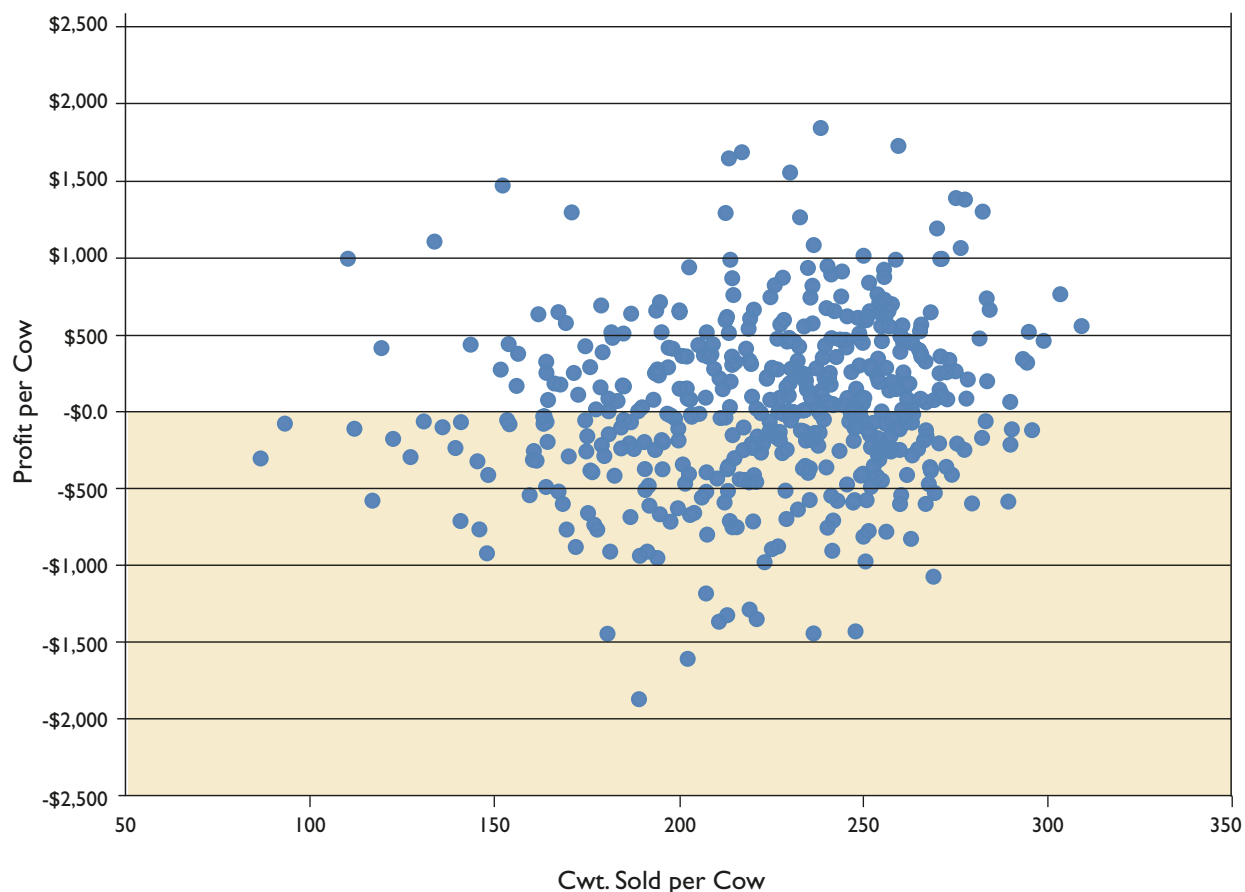
	2011	2012	2013	2014	2015
<b>NCOP<sup>1</sup></b>	<b>Dollars per Cwt.</b>				
<b>Bottom 25%</b>	<b>\$22.53</b>	<b>\$19.84</b>	<b>\$21.11</b>	<b>\$22.14</b>	<b>\$19.26</b>
<b>Top 25%</b>	<b>15.91</b>	<b>17.40</b>	<b>17.99</b>	<b>19.38</b>	<b>17.39</b>
<b>Difference</b>	<b>\$6.62</b>	<b>\$2.44</b>	<b>\$3.12</b>	<b>\$2.76</b>	<b>\$1.87</b>

<sup>1</sup>Before any return on equity

Certainly, high milk production per cow influences profitability. However, Figure 14A illustrates that by itself, high production per cow does not guarantee superior profitability, as a significant number of high production farms fall in the lower profit groups. However, very few low production farms fall in the top profit group.

Figure 14A

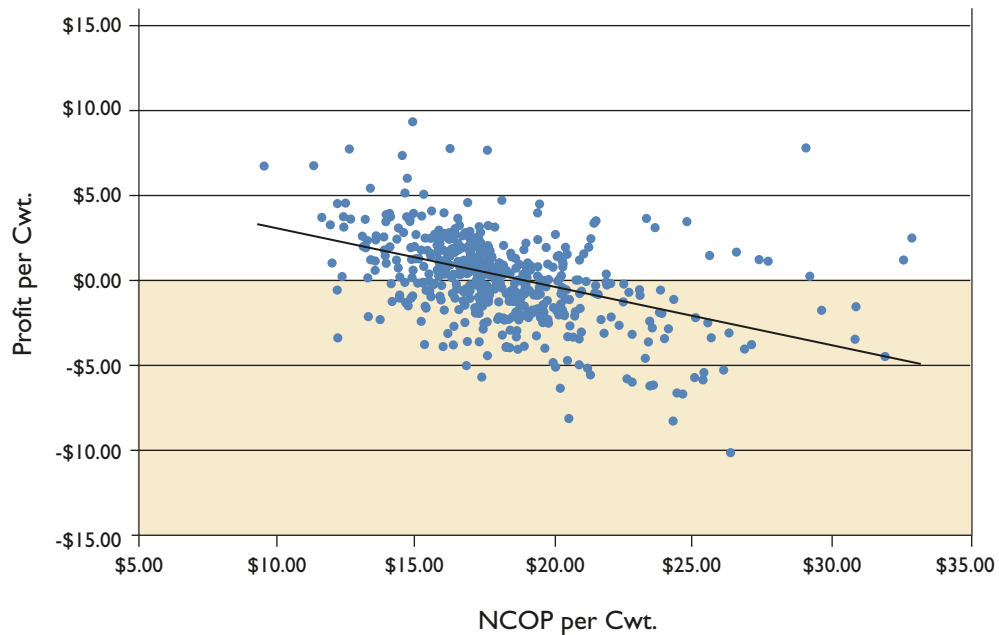
## PROFIT VS. MILK SOLD PER COW



The importance of balancing production with total costs to achieve profitability is much more obvious (Figure 14B). As NCOP decreases, the possibility of higher profits increases on nearly a straight line. Cost control, production ability, buying savvy and labor management are the main factors determining the cost of production.

Figure 14B

## PROFIT VS. NCOP



## MANAGEMENT STYLE AND DAIRY PROFITS

Above average management is critical to profits, but “above average” can encompass a range of styles. Successful managers have been able to identify and leverage their individual management strengths on which to build a profitable dairy business. In short, these managers have developed a management strategy that fits their personalities and resources.

Figure 15

## WINNING MANAGEMENT STYLES OF THE TOP 25%

	Great with Cows	Labor Efficient	Better Milk Price	Tight With a Buck	Balanced
Number of Farms	25	41	12	32	12
Average Number of Cows	357	651	291	174	131
Milk Sold per Cow (lbs.)	27,279	25,725	21,493	22,773	20,773
Milk Sold per Worker (lbs.)	1,100,671	1,655,962	920,056	1,031,607	889,471
NCOP Per Cwt.	\$17.05	\$17.22	\$18.60	\$16.52	\$17.64
Milk Price per Cwt.	\$18.12	\$18.02	\$19.80	\$18.35	\$18.29
Net Earnings per Cow	\$291	\$205	\$258	\$417	\$135
Net Earnings per Cwt.	\$1.07	\$0.80	\$1.20	\$1.83	\$0.65
Return on Assets (%)	2.8%	2.3%	2.5%	3.1%	1.4%
Percent Net Worth (%)	78%	76%	86%	79%	69%

Of the 122 farms included in 2015 top profit quartile, 110 exhibited distinct management styles, while the remaining 12 farms displayed a more balanced approach, doing well in all areas, without any single area standing out. Figure 15 breaks down these styles of farms excelling in the corresponding management factor. For example, farms included in the Great-with-Cows group outperformed all others in producing the most milk per cow.

**Great with Cows.** These farmers likely spend more time and money on cow productivity. Average milk sold of 27,279 pounds per cow is the highest among the five styles. High production allowed them to produce and sell 1.1 million pounds of milk per worker, second only to the Labor Efficient group.

**Labor Efficient.** Effective labor management, highly productive cows and the largest herd size enabled this group to be the most labor efficient, with milk sold per worker of more than 1.6 million pounds. In addition to labor efficiency, this group reported the second highest milk sold per cow. This management style typically gains labor efficiencies from economies of scale and high output per cow.

**Better Milk Price.** This group received \$19.80 per cwt. for their milk, \$1.45 more than average for the top profit group. Higher milk prices could be the result of high milk fat or protein content, negotiated premiums for quality and/or specialty markets. This category likely contains some non-Holstein herds.

**Tight With A Buck.** These operators excel at cost control, achieving the lowest cost of production at \$16.52 per cwt. Although milk per cow and milk per worker are below the top profit group average, these farmers have implemented tight cost control to achieve superior results. Some of these farms also have significant non-milk business income, which influences NCOP. The rewards of managing costs are easily seen in the highest earnings per cow and per cwt.

**Balanced.** These are good, all-around managers performing well in all areas. Although profits are less than some of the other styles, these farms tend to be smaller than the other top profit farms and are able to respond quickly to adversity affecting their businesses. This management style is well suited to smaller farms where family members provide much of the production labor.

The common theme is that top-profit farmers have reached a profitable balance between milk production per cow and costs through a variety of management styles.

## DO LARGER FARMS HAVE THE EDGE ON PROFITABILITY?

Average farm sizes in the Northeast and across the country have continually increased for many decades. The DFS has illustrated that to some extent all size farms can be profitable. However, there are strong correlations in the data regarding size of farm, efficiency, pounds of milk sold per cow, cost of production and, ultimately, profitability.

As a group, the largest-size group was by far the most profitable of the four size groups with \$77 net earnings per cow in 2015 (Figure 16). In addition, this group was:

- › The most productive on a milk-sold-per-cow and per-worker measure.
- › The lowest per-cow investor in productive assets. As a result, this group had the highest asset turnover rate.
- › The lowest cost producer.

It is noteworthy that the other three size groups were also represented in the top profit quartile. This is important because it shows there is opportunity to achieve superior profitability over a range of farm sizes.

Figure 16

### FARM SIZE AND PROFITABILITY

	99 Cows or Fewer	100-299 Cows	300-699 Cows	700 Cows or more
Average Number of Cows	67	175	487	1,161
Milk Sold Per Cow (lbs.)	19,957	22,225	24,423	25,482
Milk Sold Per Worker (lbs.)	583,449	933,327	1,159,492	1,292,340
Net Cost of Production per Cwt.	\$18.99	\$19.59	\$18.22	\$18.39
Milk Price per Cwt.	\$18.12	\$18.32	\$18.12	\$18.38
Assets per Cow	\$18,838	\$15,118	\$12,941	\$11,906
Asset Turnover	0.26	0.32	0.41	0.47
Percentage Net Worth	82%	78%	73%	67%
Net Earnings per Cow	\$28	-\$170	-\$26	\$77
Return on Assets %	0.8%	-0.6%	0.4%	1.5%

In short, being large is no guarantee of profitability. Of the 78 farms in the 700+ cow group, only 20 percent were in the top profit group. There were several farms in this largest size group with negative net earnings. Again, this is indicative that success is not just about scale.

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## CONCLUSION

Following 2014, which was a year for the record books, 2015 was a difficult year for Northeast producers. Milk prices fell sharply, and while some costs decreased as well, it was not nearly enough to preserve profitability for a number of the region's dairy farmers.

Thankfully, in general, most producers appear to have utilized the bulk of their 2014 profits to shore up their finances, and came into 2015 in good financial shape. While capital purchases and repairs rose significantly, family living draw remained flat on a per cow basis in 2014 and many farms entered 2015 with significant prepaid expenses and on average had not financed capital purchases with additional debt. This forward-looking strategy helped save some producers from financial crisis as incomes fell.

What is more worrisome is what happens in 2016. At this writing in April 2016, the wholesale milk price has fallen an additional \$2.40 from its level in December 2015. While some recovery is expected in the second half of 2016, it is projected to be modest, and 2017 remains uncertain. The actual profitability of 2016 may not be much below that of 2015, however producers began 2015 in better financial position, while in 2016 many are beginning the year in an already-stressed position. It is likely that significantly more pain will be felt across the countryside this year than in 2015.

Many producers are reevaluating the USDA Dairy Margin Protection Program (MPP), as well as other risk management strategies like LGM-Dairy, crop insurance and futures hedging. Many were disappointed that the MPP program made few payouts in 2015, as despite the depressed milk prices, the Income-Over-Feed-Cost margin (IOFC) remained close to \$8.00 per cwt most of the time. Sign-ups for the second year of the program were significantly lower than for 2015.

The greatest risk management tool however, remains smart management and cost control. By investing in property, livestock and equipment in 2014, Northeast producers entered the current downturn better prepared than they were in 2009, and milk prices have not fallen as precipitously as they did then. What is different this time, is the apparent duration of the downturn. Some analysts argue that in fact, this is not a downturn at all, but rather a reversion to the mean of marginal profitability for the dairy industry, and that producers need to retool their business models to survive in a low-margin environment. Only time will tell.

Overall, the *Northeast Dairy Farm Summary* shows us that there are multiple paths to success in the dairy business. Strategies are as different as the individual characteristics of farms within this study. Positioning your farm for success will be crucial to meeting the challenges of today and tomorrow. This summary presented various proven management strategies that have consistently resulted in above-average performance. Working closely with your Farm Credit loan officer and/or business consultant to assess your strengths and weaknesses and develop a strategy to position your farm to meet industry challenges is now more critical than ever.

If you are interested in improving your profitability, the *DFS* is only the beginning. Farm Credit's *Success Strategies Dairy Benchmarks* delves much deeper into not only farm financial data, but a host of production and herd management metrics as well. Membership includes a personalized profit assessment of your farm. For more on this program, a joint project between Farm Credit East, Yankee Farm Credit, AgChoice Farm Credit and the Pennsylvania Farm Bureau/MSB – Business Services, contact a representative of one of those partner organizations to learn more.

We hope that this year's *Northeast Dairy Farm Summary* is a useful tool for managing your farm and business. It remains essential that dairy farmers and those who serve them continue to seek answers in order to have a healthy, economically sustainable Northeast dairy industry. The entire Farm Credit team of loan officers, farm accounting professionals and business consultants are eager and prepared to help Northeast dairy farmers achieve financial success. On behalf of our entire team, thank you for your participation.



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## FINANCIAL RECORDS

The following 17 tables present the detailed financial data on which this summary was based. These tables are organized into four sets:

- › Tables A-1 through A-5 are COMPARISONS BETWEEN YEARS
- › Tables B-1 through B-3 are DATA BY HERD SIZES
- › Tables C-1 through C-6 are DATA BY PROFIT GROUPS
- › Tables D-1 through D-3 are DATA BY REGIONS

Each set includes a condensed earnings worksheet, a balance sheet summary and a page of evaluation factors. The 2011-to-2015 data series includes farms in Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York and Vermont<sup>8</sup>.

Please note the following cautions to properly use this data:

- › Cattle purchased for replacements are considered operating expenses, but cattle purchased for expansion are capital purchases. The accrual adjustment change in the inventory of raised livestock is calculated by subtracting purchases for expansion from the total increase in cattle inventory value.
- › Depreciation for all farms was restated by applying a standard percentage of depreciation to various asset classes in order to compare consistent numbers from year-to-year and avoid variations driven by accounting and changes in tax laws.
- › Incorporated farms were adjusted to sole proprietor status, and owner draw was recorded as Family Living Expense. If there was more than one owner, the largest draw was recorded as Family Living, and other owner salaries were recorded under Hired Labor.
- › Appreciation and revaluation of capital assets do not appear in the earnings statements. They are, however, included on the balance sheets.
- › Current liabilities on the balance sheet include both current debts as well as the current portion of intermediate-term and long-term liabilities.
- › Government payments include MPP and state program payments, but do not include significant one-time grants, which are accounted for as paid-in capital. Crop insurance indemnities are recorded as Crop Revenue.
- › Supply expenses include rBST costs, if used.

Your Farm Credit team of ag finance specialists encourages you to review the following financial data thoughtfully and thoroughly. It allows you to identify your strengths and weaknesses and to improve your operation for the future.

For further information, please contact your local Farm Credit office.

<sup>8</sup> No farm data was submitted from Rhode Island. 2014 Data has been restated from last year's report to include Vermont farms.

TABLE A-1.

## COMPARISON BETWEEN YEARS — EARNINGS WORKSHEET

	2011	2012	2013	2014	2015
Number of Farms	532	504	517	474	487
Average Number of Cows	326	343	315	348	374
<b>Receipts</b>					
Milk Sales	\$1,631,221	\$1,594,407	\$1,600,058	\$2,111,261	\$1,662,185
Cattle Sales	86,137	112,841	96,009	136,337	197,941
Crop Sales	65,395	98,865	52,877	67,552	44,799
Government Payments <sup>1</sup>			28,185	12,112	27,947
Other	65,441	88,846	54,794	51,003	51,745
<b>CASH RECEIPTS</b>	<b>\$1,848,194</b>	<b>\$1,894,959</b>	<b>\$1,831,923</b>	<b>\$2,378,265</b>	<b>\$1,984,617</b>
<b>Accrual Adjustments</b>					
+ Change in Inventory-Raised Livestock	\$12,927	\$22,814	\$19,198	\$34,838	\$21,523
<b>VALUE OF FARM PRODUCTION (a)</b>	<b>\$1,861,121</b>	<b>\$1,917,773</b>	<b>\$1,851,121</b>	<b>\$2,413,103</b>	<b>\$2,006,140</b>
<b>COST OF GOODS SOLD</b>					
Chemicals & Sprays	\$17,202	\$18,266	\$18,525	\$23,467	\$18,632
Custom Hire	48,485	50,175	48,814	59,086	67,315
Purchased Feed	514,478	606,162	582,279	660,022	648,148
Fertilizer & Lime	48,540	63,550	61,429	61,748	61,829
Freight & Trucking (Marketing)	65,960	75,749	71,550	78,300	88,766
Gasoline, Fuel & Oil	81,067	86,746	78,925	89,719	62,094
Hired Labor	224,937	247,698	232,019	275,440	298,246
Seed & Plants	30,883	40,965	40,896	49,750	46,404
Supplies	82,408	96,904	83,997	102,636	107,466
Veterinary, Medicine & Breeding	63,570	66,622	62,360	75,495	76,649
Cow Replacements	4,063	3,848	4,121	15,747	1,611
<b>Total Cost of Goods Sold</b>	<b>\$1,181,593</b>	<b>\$1,356,685</b>	<b>\$1,284,915</b>	<b>\$1,491,410</b>	<b>\$1,477,160</b>
<b>Gross Margin</b>	<b>\$679,528</b>	<b>\$561,088</b>	<b>\$566,206</b>	<b>\$921,693</b>	<b>\$528,980</b>
<b>OVERHEAD</b>					
Insurance	19,944	20,196	19,464	24,516	26,756
Interest	39,733	40,140	37,049	39,477	43,080
Rent	26,920	27,910	29,358	37,327	41,130
Repairs	103,965	104,147	104,372	142,733	130,927
Property & Misc. Taxes	19,533	21,464	22,402	24,899	25,680
Utilities	35,328	35,014	35,256	43,726	42,831
Other	34,968	27,262	17,310	32,991	35,610
<b>Accrual Adjustments</b>					
+ Depreciation	100,598	106,684	107,267	123,144	131,249
<b>Total Overhead Expenses</b>	<b>\$380,989</b>	<b>\$382,817</b>	<b>\$372,478</b>	<b>\$468,813</b>	<b>\$477,263</b>
<b>Total Farm Production Costs (b)</b>	<b>\$1,562,582</b>	<b>\$1,739,502</b>	<b>\$1,657,393</b>	<b>\$1,960,223</b>	<b>\$1,954,423</b>
<b>NET FARM EARNINGS (a) - (b)</b>					
	<b>\$298,539</b>	<b>\$178,271</b>	<b>\$193,728</b>	<b>\$452,880</b>	<b>\$51,717</b>
+ Net Nonfarm Income	13,437	14,924	17,799	15,660	16,289
- Family Living & Income Taxes	52,147	51,371	56,837	61,785	62,711
<b>NET HOUSEHOLD EARNINGS</b>	<b>\$259,829</b>	<b>\$141,824</b>	<b>\$154,690</b>	<b>\$406,755</b>	<b>\$5,295</b>

Note: Expenses are adjusted for changes in accounts payable, prepaid expenses, and supply inventories to remove the effects of tax planning and reflect only 1 year's expenses.

<sup>1</sup>Prior to 2013, government payments have been included in "other"

TABLE A-2.

## COMPARISON BETWEEN YEARS — EARNINGS WORKSHEET PER CWT.

	2011	2012	2013	2014	2015
Number of Farms	532	504	517	474	487
Average Number of Cows	326	343	315	348	374
<b>Receipts</b>	<b>DOLLARS PER CWT. OF MILK</b>				
Milk Sales	\$ 21.53	\$ 20.01	\$ 21.30	\$ 25.58	\$ 18.24
Cattle Sales	1.14	1.42	1.28	1.66	2.17
Crop Sales	0.86	1.24	0.70	0.81	0.49
Government Payments			0.38	0.15	0.31
Other	0.86	1.11	0.73	0.61	0.56
<b>CASH RECEIPTS</b>	<b>\$ 24.39</b>	<b>\$ 23.78</b>	<b>\$ 24.39</b>	<b>\$ 28.81</b>	<b>\$ 21.77</b>
<b>Accrual Adjustments</b>					
+ Change in Inventory-Raised Livestock	\$ 0.17	\$ 0.29	\$ 0.26	\$ 0.43	\$ 0.24
<b>VALUE OF FARM PRODUCTION (a)</b>	<b>\$ 24.56</b>	<b>\$ 24.07</b>	<b>\$ 24.64</b>	<b>\$ 29.24</b>	<b>\$ 22.01</b>
<b>COST OF GOODS SOLD</b>					
Chemicals & Sprays	\$ 0.23	\$ 0.23	\$ 0.25	\$ 0.29	\$ 0.21
Custom Hire	0.64	0.63	0.65	0.71	0.74
Purchased Feed	6.79	7.61	7.75	7.99	7.12
Fertilizer & Lime	0.64	0.80	0.82	0.75	0.68
Freight & Trucking (Marketing)	0.87	0.95	0.95	0.95	0.97
Gasoline, Fuel & Oil	1.07	1.09	1.05	1.08	0.68
Hired Labor	2.97	3.11	3.09	3.34	3.27
Seed & Plants	0.41	0.51	0.54	0.60	0.51
Supplies	1.09	1.21	1.12	1.25	1.18
Veterinary, Medicine & Breeding	0.84	0.84	0.83	0.91	0.84
Cow Replacements	0.05	0.05	0.05	0.19	0.03
<b>Total Cost of Goods Sold</b>	<b>\$15.60</b>	<b>\$17.03</b>	<b>\$17.10</b>	<b>\$18.06</b>	<b>\$16.23</b>
<b>Gross Margin</b>	<b>\$8.96</b>	<b>\$7.04</b>	<b>\$7.54</b>	<b>\$11.18</b>	<b>\$5.78</b>
<b>OVERHEAD</b>					
Insurance	0.26	0.25	0.26	0.29	0.29
Interest	0.52	0.50	0.49	0.48	0.47
Rent	0.36	0.35	0.39	0.45	0.45
Repairs	1.37	1.31	1.39	1.73	1.43
Property & Misc. Taxes	0.26	0.27	0.30	0.31	0.28
Utilities	0.47	0.44	0.47	0.53	0.47
Other	0.46	0.34	0.23	0.41	0.38
<b>Accrual Adjustments</b>					
+ Depreciation	1.33	1.34	1.43	1.49	1.44
<b>Total Overhead Expenses</b>	<b>\$5.03</b>	<b>\$4.80</b>	<b>\$4.96</b>	<b>\$5.69</b>	<b>\$5.21</b>
<b>Total Farm Production Costs (b)</b>	<b>\$20.63</b>	<b>\$21.83</b>	<b>\$22.06</b>	<b>\$23.75</b>	<b>\$21.44</b>
<b>NET FARM EARNINGS (a) - (b)</b>	<b>\$ 3.93</b>	<b>\$ 2.24</b>	<b>\$ 2.58</b>	<b>\$ 5.49</b>	<b>\$ 0.57</b>
+ Net Nonfarm Income	0.18	0.18	0.24	0.19	0.18
- Family Living & Income Taxes	0.69	0.60	0.76	0.75	0.69
<b>NET HOUSEHOLD EARNINGS</b>	<b>\$ 3.42</b>	<b>\$ 1.82</b>	<b>\$ 2.06</b>	<b>\$ 4.93</b>	<b>\$ 0.06</b>

Note: Expenses adjusted for changes in accounts payable, prepaid expenses and supply inventories to remove the effects of tax planning and reflect only one year's expenses.

TABLE A-3.

## COMPARISON BETWEEN YEARS — BALANCE SHEET SUMMARY DECEMBER 31

	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
Number of Farms	532	504	517	474	487
Average Number of Cows	326	343	315	348	374
<b>Assets</b>	<b>DOLLARS PER FARM</b>				
Livestock	\$752,107	\$788,849	\$720,116	\$834,062	\$887,198
Feed & Crops	328,481	394,507	356,717	418,949	434,736
Machinery & Equipment	662,191	699,551	725,365	846,834	857,528
Farm-Land & Buildings	1,422,083	1,696,332	1,675,190	1,852,583	1,974,315
All Other	532,822	472,771	474,546	767,829	737,271
<b>TOTAL ASSETS</b>	<b>\$3,697,684</b>	<b>\$4,052,010</b>	<b>\$3,951,934</b>	<b>\$4,720,257</b>	<b>\$4,891,048</b>
<b>TOTAL LIABILITIES</b>	<b>\$1,032,076</b>	<b>\$1,156,617</b>	<b>\$1,066,046</b>	<b>\$1,167,218</b>	<b>\$1,376,593</b>
<b>TOTAL NET WORTH</b>	<b>\$2,665,608</b>	<b>\$2,895,393</b>	<b>\$2,885,888</b>	<b>\$3,553,039</b>	<b>\$3,514,455</b>
<b>Assets</b>	<b>DOLLARS PER COW</b>				
Livestock	\$2,307	\$2,300	\$2,286	\$2,397	\$2,372
Feed & Crops	1,008	1,150	1,132	1,204	\$1,162
Machinery & Equipment	2,031	2,040	2,303	2,433	\$2,293
Farm-Land & Buildings	4,362	4,946	5,141	5,324	\$5,279
All Other	1,634	1,378	1,684	2,206	\$1,971
<b>TOTAL ASSETS</b>	<b>\$11,342</b>	<b>\$11,813</b>	<b>\$12,546</b>	<b>\$13,564</b>	<b>\$13,078</b>
<b>TOTAL LIABILITIES</b>	<b>\$3,164</b>	<b>\$3,372</b>	<b>\$3,384</b>	<b>\$3,354</b>	<b>\$3,681</b>
<b>TOTAL NET WORTH</b>	<b>\$8,178</b>	<b>\$8,441</b>	<b>\$9,162</b>	<b>\$10,210</b>	<b>\$9,397</b>
<b>Assets</b>	<b>DOLLARS PER CWT. OF MILK</b>				
Livestock	\$9.93	\$9.90	\$9.59	10.02	10.09
Feed & Crops	4.33	4.95	4.75	5.03	4.95
Machinery & Equipment	8.74	8.78	9.66	10.17	9.76
Farm-Land & Buildings	18.77	21.29	22.30	22.25	22.46
All Other	7.03	5.93	6.32	9.22	8.39
<b>TOTAL ASSETS</b>	<b>\$48.80</b>	<b>\$50.85</b>	<b>\$52.61</b>	<b>\$56.69</b>	<b>\$55.65</b>
<b>TOTAL LIABILITIES</b>	<b>\$13.62</b>	<b>\$14.51</b>	<b>\$14.19</b>	<b>\$14.02</b>	<b>\$15.66</b>
<b>TOTAL NET WORTH</b>	<b>\$35.18</b>	<b>\$36.34</b>	<b>\$38.42</b>	<b>\$42.67</b>	<b>\$39.99</b>
<b>PERCENT NET WORTH</b>	<b>72%</b>	<b>72%</b>	<b>73%</b>	<b>75%</b>	<b>72%</b>

TABLE A-4.

## COMPARISON BETWEEN YEARS — EVALUATION FACTORS

	2011	2012	2013	2014	2015
Number of Farms	532	513	517	474	487
Average Number of Cows	326	339	315	348	374
Worker Equivalents	7.0	7.2	6.8	7.5	8.1
Cows Per Worker	47	47	46	46	47
Pounds of Milk Sold Per Worker	1,085,617	1,115,785	1,097,288	1,102,149	1,134,300
Pounds of Milk Sold	7,577,606	8,078,285	7,512,009	8,255,565	9,142,456
Pounds of Milk Sold Per Cow	23,244	23,552	23,848	23,759	24,365
Milk Price Per Cwt.	\$21.53	\$19.74	\$21.30	\$25.58	\$18.24
Total Crop Acres	769	822	766	819	825
Crop Acres Per Cow	2.4	2.4	2.4	2.4	2.2
Feed Cost Per Cow	\$1,578	\$1,767	\$1,849	\$1,897	\$1,733
Feed as a Percent of Milk Sales	32%	38%	36%	31%	39%
Feed & Crop Expense Per Cow*	\$1,875	\$2,123	\$2,233	\$2,287	\$2,072
Feed & Crop Expense Per Cwt.	\$8.07	\$9.01	\$9.36	\$9.63	\$8.51
Machinery Costs Per Cow**	\$869	\$1,016	\$910	\$1,039	\$898
Machinery Costs Per Cwt.	\$3.74	\$4.31	\$3.82	\$4.37	\$3.69
Labor & Family Living Per Cow	\$849	\$863	\$917	\$965	\$958
Labor & Family Living Per Cwt.	\$3.65	\$3.66	\$3.85	\$4.06	\$3.93
Assets Per Cow	\$11,342	\$11,408	\$12,546	\$13,564	\$13,078
Debt Per Cow	\$3,164	\$3,136	\$3,384	\$3,354	\$3,681
Net Worth Per Cow	\$8,178	\$8,272	\$9,162	\$10,210	\$9,397
Percent Net Worth	72%	72%	73%	75%	72%

\*Feed & Crop Expense = Feed + Seed & Plants + Fertilizer + Chemicals & Spray.

\*\*Machinery Costs = Machinery Repairs + Fuel & Oil + Custom Hire + Machinery & Equipment Depreciation.

TABLE A-5.

## COMPARISON BETWEEN YEARS — TREND ANALYSIS

<b>ADJUSTED FINANCIAL CONDITION AS OF DECEMBER 31</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Current Assets	\$576,196	\$586,106	\$621,951	\$807,176	\$745,987
Intermediate Assets	1,582,712	1,589,227	1,642,957	1,917,597	1,998,014
Fixed Assets	1,538,776	1,568,586	1,687,026	1,995,484	2,147,047
<b>TOTAL ASSETS</b>	<b>\$3,697,684</b>	<b>\$3,743,919</b>	<b>\$3,951,934</b>	<b>\$4,720,257</b>	<b>\$4,891,048</b>
Change (+ or -) from Prior Years	\$506,564	\$46,235	\$208,015	\$768,323	\$170,791
Current Liabilities	\$209,387	\$207,872	\$219,220	\$233,547	\$271,247
Intermediate Liabilities	426,589	439,020	430,905	464,711	544,019
Long-Term Liabilities	396,100	417,587	415,921	468,959	561,327
<b>TOTAL LIABILITIES</b>	<b>\$1,032,076</b>	<b>\$1,064,479</b>	<b>\$1,066,046</b>	<b>\$1,167,217</b>	<b>\$1,376,593</b>
Change (+ or -) from Prior Years	\$10,938	\$32,403	\$1,567	\$101,171	\$209,376
<b>NET WORTH</b>	<b>\$2,665,608</b>	<b>\$2,679,440</b>	<b>\$2,885,888</b>	<b>\$3,553,040</b>	<b>\$3,514,455</b>
Change (+ or -) from Prior Years	\$495,626	\$13,832	\$206,448	\$667,152	-\$38,585
% Net Worth	72%	72%	73%	75%	72%
<hr/>					
<b>I &amp; E Farm (Cash Basis)</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Sales - Milk	\$1,631,221	\$1,594,407	\$1,600,058	\$2,111,261	\$1,662,185
Sales - Livestock	86,137	112,841	96,009	136,337	197,941
Other Farm Income	130,836	187,711	135,856	130,667	124,491
<b>TOTAL FARM INCOME</b>	<b>\$1,848,194</b>	<b>\$1,894,959</b>	<b>\$1,831,923</b>	<b>\$2,378,265</b>	<b>\$1,984,617</b>
<b>FARM CASH EXPENSES</b>	<b>\$1,461,984</b>	<b>\$1,632,818</b>	<b>\$1,550,126</b>	<b>\$1,837,079</b>	<b>\$1,823,174</b>
<b>NET CASH FARM INCOME</b>	<b>\$386,210</b>	<b>\$262,141</b>	<b>\$281,797</b>	<b>\$541,186</b>	<b>\$161,443</b>
ADD: Interest	\$39,733	\$40,140	\$37,049	\$39,477	\$43,080
<b>TOTAL AVAILABLE - Farm</b>	<b>\$425,943</b>	<b>\$302,281</b>	<b>\$318,846</b>	<b>\$580,663</b>	<b>\$204,523</b>
ADD: Net Nonfarm Income	\$13,437	\$31,690	\$17,799	\$15,660	\$16,289
Sale Capital Assets	\$16,436	\$25,406	\$14,251	\$14,489	\$25,033
<b>TOTAL FUNDS AVAILABLE (a)</b>	<b>\$455,816</b>	<b>\$359,377</b>	<b>\$350,896</b>	<b>\$610,812</b>	<b>\$245,845</b>
Family Living + Income Taxes	\$52,147	\$51,371	\$56,837	\$61,785	\$62,711
Debt Service Requirement	\$175,259	\$183,882	\$180,421	\$204,112	\$219,747
<b>TOTAL FUNDS REQUIRED (b)</b>	<b>\$227,406</b>	<b>\$235,253</b>	<b>\$237,258</b>	<b>\$265,897</b>	<b>\$282,458</b>
<b>EXCESS (DEFICIT) (a - b)</b>	<b>\$228,410</b>	<b>\$124,124</b>	<b>\$113,638</b>	<b>\$344,915</b>	<b>-\$36,613</b>

TABLE B-1.

## 2015 DATA BY HERD SIZE — EARNINGS WORKSHEET

	HERD SIZE				
	99 COWS OR FEWER	100-299 COWS	300-699 COWS	700 COWS OR MORE	ALL FARMS
Number of Farms	122	180	107	78	487
Average Number of Cows	67	175	487	1,161	374
Receipts	DOLLARS PER COW				
Milk Sales	\$3,628	\$4,075	\$4,390	\$4,660	\$4,444
Cattle Sales	709	515	494	512	529
Crop Sales	213	86	122	118	120
Government Payments	53	81	92	64	75
Other	249	123	116	149	138
<b>CASH RECEIPTS</b>	<b>\$4,852</b>	<b>\$4,880</b>	<b>\$5,214</b>	<b>\$5,503</b>	<b>\$5,306</b>
<b>Accrual Adjustments</b>					
+ Change in Inventory-Raised Livestock	\$19	\$8	\$41	\$91	\$58
<b>VALUE OF FARM PRODUCTION (a)</b>	<b>\$4,871</b>	<b>\$4,888</b>	<b>\$5,255</b>	<b>\$5,594</b>	<b>\$5,364</b>
<b>COST OF GOODS SOLD</b>					
Chemicals & Sprays	\$54	\$43	\$49	\$52	\$50
Custom Hire	88	140	170	206	180
Purchased Feed	1,307	1,498	1,699	1,865	1,733
Fertilizer & Lime	172	168	178	158	165
Freight & Trucking (Marketing)	210	226	228	247	237
Gasoline, Fuel & Oil	178	177	169	159	166
Hired Labor	370	678	818	862	797
Seed & Plants	130	127	122	123	124
Supplies	278	285	290	286	287
Veterinary, Medicine & Breeding	155	180	202	219	205
Cow Replacements	30	12	5	0	4
<b>Total Cost of Goods Sold</b>	<b>\$2,972</b>	<b>\$3,534</b>	<b>\$3,930</b>	<b>\$4,177</b>	<b>\$3,948</b>
<b>Gross Margin</b>	<b>\$1,899</b>	<b>\$1,354</b>	<b>\$1,325</b>	<b>\$1,417</b>	<b>\$1,416</b>
<b>OVERHEAD</b>					
Insurance	83	81	75	65	72
Interest	128	115	108	117	115
Rent	63	93	104	124	110
Repairs	346	298	318	385	350
Property & Misc. Taxes	123	84	73	55	69
Utilities	137	116	112	114	115
Other	125	90	89	98	96
<b>Accrual Adjustments</b>					
+ Depreciation	525	433	342	312	351
<b>Total Overhead Expenses</b>	<b>\$1,530</b>	<b>\$1,310</b>	<b>\$1,221</b>	<b>\$1,270</b>	<b>\$1,278</b>
<b>Total Farm Production Costs (b)</b>	<b>\$4,502</b>	<b>\$4,844</b>	<b>\$5,151</b>	<b>\$5,447</b>	<b>\$5,226</b>
<b>NET FARM EARNINGS (a) - (b)</b>	<b>\$369</b>	<b>\$44</b>	<b>\$104</b>	<b>\$147</b>	<b>\$138</b>
+ Net Nonfarm Income	189	109	35	13	44
- Family Living & Income Taxes	530	323	165	83	168
<b>NET HOUSEHOLD EARNINGS</b>	<b>\$28</b>	<b>\$-170</b>	<b>\$-26</b>	<b>\$77</b>	<b>\$14</b>

Note: Expenses adjusted for changes in accounts payable, prepaid expenses, and supply inventories to remove the effects of tax planning and reflect only one year's expenses.

TABLE B-2.

## 2015 DATA BY HERD SIZE — BALANCE SHEET SUMMARY

December 31, 2015

	HERD SIZE				
	99 COWS OR FEWER	100-299 COWS	300-699 COWS	700 COWS OR MORE	ALL FARMS
Number of Farms	122	180	107	78	487
Average Number of Cows	67	175	487	1,161	374
	ASSETS PER COW				
Cash & Accounts Receivable	\$696	\$525	\$538	\$529	\$539
Feed & Crop Inventory	1,114	1,134	1,193	1,152	1,162
Supplies & Prepaid Expenses	151	143	229	285	235
Other Current Assets	147	61	41	59	59
<b>TOTAL CURRENT ASSETS</b>	<b>\$2,108</b>	<b>\$1,863</b>	<b>\$2,001</b>	<b>\$2,025</b>	<b>\$1,995</b>
Dairy Livestock	\$2,245	\$2,301	\$2,384	\$2,393	\$2,3725
Machinery & Equipment	3,710	3,059	2,315	1,886	2,293
Other Intermediate Assets	1,497	999	581	547	677
<b>TOTAL INTERMEDIATE ASSETS</b>	<b>\$7,452</b>	<b>\$6,359</b>	<b>\$5,280</b>	<b>\$4,826</b>	<b>\$5,342</b>
Farm Real Estate	\$8,950	\$6,243	\$5,285	\$4,588	\$5,279
Other Fixed Assets	328	653	375	467	462
<b>TOTAL FIXED ASSETS</b>	<b>\$9,278</b>	<b>\$6,896</b>	<b>\$5,660</b>	<b>\$5,055</b>	<b>\$5,741</b>
<b>TOTAL ASSETS</b>	<b>\$18,838</b>	<b>\$15,118</b>	<b>\$12,941</b>	<b>\$11,906</b>	<b>\$13,078</b>
	LIABILITIES PER COW				
Accounts Payable	\$109	\$96	\$103	\$68	\$85
Farm Credit Short-Term Loans	38	115	151	221	173
Other Current Liabilities	487	458	460	469	467
<b>TOTAL CURRENT LIABILITIES</b>	<b>\$634</b>	<b>\$669</b>	<b>\$714</b>	<b>\$758</b>	<b>\$725</b>
Farm Credit Intermediate Term	\$856	\$997	\$1,144	\$1,355	\$1,215
Other Intermediate Liabilities	403	334	226	198	240
<b>TOTAL INTERMEDIATE LIABILITIES</b>	<b>\$1,259</b>	<b>\$1,331</b>	<b>\$1,370</b>	<b>\$1,553</b>	<b>\$1,455</b>
Farm Credit Long-Term Real Estate	\$1,223	\$1,132	\$1,269	\$1,471	\$1,353
Other Long-Term Liabilities	349	239	125	109	148
<b>TOTAL LONG-TERM LIABILITIES</b>	<b>\$1,572</b>	<b>\$1,371</b>	<b>\$1,394</b>	<b>\$1,580</b>	<b>\$1,501</b>
<b>TOTAL LIABILITIES</b>	<b>\$3,465</b>	<b>\$3,371</b>	<b>\$3,478</b>	<b>\$3,891</b>	<b>\$3,681</b>
	NET WORTH PER COW				
<b>OWNER'S NET WORTH</b>	<b>\$15,373</b>	<b>\$11,747</b>	<b>\$9,463</b>	<b>\$8,015</b>	<b>\$9,397</b>
<b>TOTAL LIABILITIES &amp; NET WORTH</b>	<b>\$18,838</b>	<b>\$15,118</b>	<b>\$12,941</b>	<b>\$11,906</b>	<b>\$13,078</b>
<b>PERCENT NET WORTH</b>	<b>82%</b>	<b>78%</b>	<b>73%</b>	<b>67%</b>	<b>72%</b>



TABLE B-3.

## 2015 DATA BY HERD SIZE — EVALUATION FACTORS

	HERD SIZE				
	99 COWS OR FEWER	100-299 COWS	300-699 COWS	700 COWS OR MORE	ALL FARMS
Number of Farms	122	180	107	78	487
Average Number of Cows	67	175	487	1,161	374
Worker Equivalents	2.3	4.2	10.3	23.1	8.0
Cows Per Worker	29	42	48	51	47
Pounds of Milk Sold Per Worker	583,449	933,327	1,159,492	1,292,340	1,134,300
Pounds of Milk Sold Per Farm	1,341,608	3,886,502	11,797,655	29,632,494	9,111,895
Pounds of Milk Sold Per Cow	19,957	22,225	24,423	25,482	24,366
Milk Price Per Cwt.	\$18.12	\$18.32	\$18.12	\$18.38	\$18.24
Total Crop Acres	249	492	1,088	2,138	826
Crop Acres Per Cow	3.7	2.8	2.2	1.8	2.2
Crop Acres Per Worker	108	118	107	94	103
Feed Cost Per Cow	\$1,307	\$1,498	\$1,699	\$1,865	\$1,733
Feed Cost Per Cwt.	\$6.55	\$6.74	\$6.96	\$7.32	\$7.11
Feed as a Percent of Milk Sales	36%	37%	38%	40%	39%
Feed & Crop Expense Per Cow <sup>1</sup>	1,665	1,836	2,048	2,196	2,073
Feed & Crop Expense Per Cwt.	\$8.34	\$8.26	\$8.39	\$8.62	\$8.51
Machinery Cost Per Cow <sup>2</sup>	\$989	\$917	\$867	\$900	\$897
Machinery Costs Per Cwt.	\$4.96	\$4.13	\$3.55	\$3.53	\$3.68
Labor & Family Living Per Cow	\$851	\$991	\$973	\$941	\$958
Labor & Family Living Per Cwt.	\$4.26	\$4.46	\$3.98	\$3.69	\$3.93
Assets Per Cow	\$18,839	\$15,118	\$12,940	\$11,905	\$13,078
Debt Per Cow	\$3,464	\$3,371	\$3,478	\$3,891	\$3,681
Net Worth Per Cow	\$15,375	\$11,747	\$9,462	\$8,014	\$9,397
Percent Return on Assets <sup>3</sup>	0.8%	-0.6%	0.4%	1.5%	0.8%
Percent Return on Equity <sup>4</sup>	1.2%	-0.5%	0.9%	2.5%	1.4%

<sup>1</sup>Feed & Crop Expense = Feed + Seed & Plants + Fertilizer + Chemicals & Sprays.

<sup>2</sup>Machinery Cost = Machinery Repairs + Custom Hire + Fuel & Oil + Machinery & Equipment Depreciation.

<sup>3</sup>Return on Assets = (Net Earnings + Interest) / Average Farm Assets.

<sup>4</sup>Return on Equity = (Net Earnings + Interest) / Average Farm Net Worth.

TABLE C-1.

## 2015 DATA BY PROFIT GROUPS — EARNINGS WORKSHEET

	PROFIT GROUP				
	BOTTOM 25%	THIRD 25%	SECOND 25%	TOP 25%	ALL FARMS
Number of Farms	121	122	122	122	487
Average Number of Cows	340	379	413	366	374
<b>Receipts</b>	<b>DOLLARS PER COW</b>				
Milk Sales	\$4,285	\$4,320	\$4,524	\$4,599	\$4,444
Cattle Sales	649	485	482	527	529
Crop Sales	137	130	67	150	120
Government Payments	37	88	82	61	75
Other	162	120	145	155	138
<b>CASH RECEIPTS</b>	<b>\$5,270</b>	<b>\$5,143</b>	<b>\$5,300</b>	<b>\$5,492</b>	<b>\$5,306</b>
<b>Accrual Adjustments</b>					
+ Change in Inventory-Raised Livestock	\$72	\$40	\$85	\$43	\$58
<b>VALUE OF FARM PRODUCTION (a)</b>	<b>\$5,342</b>	<b>\$5,183</b>	<b>\$5,385</b>	<b>\$5,535</b>	<b>\$5,364</b>
<b>COST OF GOODS SOLD</b>					
Chemicals & Sprays	\$42	\$41	\$48	\$68	\$50
Custom Hire	187	204	168	152	180
Purchased Feed	1,783	1,696	1,710	1,740	1,733
Fertilizer & Lime	179	174	165	140	165
Freight & Trucking (Marketing)	229	218	262	238	237
Gasoline, Fuel & Oil	189	167	160	153	166
Hired Labor	831	802	818	737	797
Seed & Plants	135	121	124	119	124
Supplies	329	287	274	260	287
Veterinary, Medicine & Breeding	216	207	207	191	205
Cow Replacements	4	3	3	18	4
<b>Total Cost of Goods Sold</b>	<b>\$4,124</b>	<b>\$3,920</b>	<b>\$3,939</b>	<b>\$3,816</b>	<b>\$3,948</b>
<b>Gross Margin</b>	<b>\$1,218</b>	<b>\$1,263</b>	<b>\$1,446</b>	<b>\$1,719</b>	<b>\$1,416</b>
<b>OVERHEAD</b>					
Insurance	90	68	64	67	72
Interest	126	125	122	88	115
Rent	125	107	111	97	110
Repairs	369	354	346	340	350
Property & Misc. Taxes	76	64	60	76	69
Utilities	125	110	111	112	115
Other	97	104	104	80	96
<b>Accrual Adjustments</b>					
+ Depreciation	364	326	316	411	351
<b>Total Overhead Expenses</b>	<b>\$1,372</b>	<b>\$1,258</b>	<b>\$1,234</b>	<b>\$1,271</b>	<b>\$1,278</b>
<b>Total Farm Production Costs (b)</b>	<b>\$5,496</b>	<b>\$5,178</b>	<b>\$5,173</b>	<b>\$5,087</b>	<b>\$5,226</b>
<b>NET FARM EARNINGS (a) - (b)</b>	<b>\$-154</b>	<b>\$5</b>	<b>\$212</b>	<b>\$448</b>	<b>\$138</b>
+ Net Nonfarm Income	67	28	31	51	44
- Family Living & Income Taxes	158	163	151	208	168
<b>NET HOUSEHOLD EARNINGS</b>	<b>\$-245</b>	<b>\$-130</b>	<b>\$92</b>	<b>\$291</b>	<b>\$14</b>

Note: Expenses adjusted for changes in accounts payable, prepaid expenses and supply inventories to remove the effects of tax planning and reflect only one year's expenses.

TABLE C-2.

## 2015 DATA BY PROFIT GROUPS — BALANCE SHEET SUMMARY

December 31, 2015

	PROFIT GROUP				
	BOTTOM 25%	THIRD 25%	SECOND 25%	TOP 25%	ALL FARMS
Number of Farms	121	122	122	122	487
Average Number of Cows	340	379	413	366	374
	ASSETS PER COW				
Cash & Accounts Receivable	\$471	\$461	\$494	\$733	\$539
Feed & Crop Inventory	1,263	1,124	1,124	1,175	1,162
Supplies & Prepaid Expenses	96	169	217	431	235
Other Current Assets	51	48	54	75	59
TOTAL CURRENT ASSETS	\$1,881	\$1,802	\$1,889	\$2,414	\$1,995
Dairy Livestock	\$2,368	\$2,240	\$2,498	\$2,371	\$2,372
Machinery & Equipment	2,261	2,084	2,076	2,811	2,293
Other Intermediate Assets	845	657	530	713	677
TOTAL INTERMEDIATE ASSETS	\$5,474	\$4,981	\$5,104	\$5,895	\$5,342
Farm Real Estate	\$5,896	\$4,894	\$4,848	\$5,558	\$5,279
Other Fixed Assets	528	437	356	535	462
TOTAL FIXED ASSETS	\$6,424	\$5,331	\$5,204	\$6,093	\$5,741
TOTAL ASSETS	\$13,779	\$12,114	\$12,197	\$14,402	\$13,078
	LIABILITIES PER COW				
Accounts Payable	\$129	\$82	\$80	\$64	\$85
Farm Credit Short-Term Loans	174	174	190	144	173
Other Current Liabilities	466	497	457	440	467
TOTAL CURRENT LIABILITIES	\$769	\$753	\$727	\$648	\$725
Farm Credit Intermediate Term	\$1,230	\$1,426	\$1,268	\$922	\$1,215
Other Intermediate Liabilities	261	249	208	242	240
TOTAL INTERMEDIATE LIABILITIES	\$1,491	\$1,675	\$1,476	\$1,164	\$1,455
Farm Credit Long-Term Real Estate	\$1,645	\$1,382	\$1,354	\$1,064	\$1,353
Other Long-Term Liabilities	168	117	158	162	148
TOTAL LONG-TERM LIABILITIES	\$1,813	\$1,499	\$1,512	\$1,226	\$1,501
TOTAL LIABILITIES	\$4,073	\$3,927	\$3,715	\$3,038	\$3,681
	NET WORTH PER COW				
OWNER'S NET WORTH	\$9,706	\$8,187	\$8,482	\$11,364	\$9,397
TOTAL LIABILITIES & NET WORTH	\$13,779	\$12,114	\$12,197	\$14,402	\$13,078
PERCENT NET WORTH	70%	68%	70%	79%	72%

TABLE C-3.

## 2015 DATA BY PROFIT GROUPS — EVALUATION FACTORS

	PROFIT GROUP				
	BOTTOM 25%	THIRD 25%	SECOND 25%	TOP 25%	ALL FARMS
Number of Farms	121	122	122	122	487
Average Number of Cows	340	379	413	366	374
Worker Equivalents	7.87	8.45	8.48	7.44	8.00
Cows Per Worker	43	46	49	49	47
Pounds of Milk Sold Per Worker	1,030,140	1,068,417	1,193,795	1,230,631	1,134,300
Pounds of Milk Sold Per Farm	8,134,468	8,990,755	10,126,038	9,160,949	9,111,895
Pounds of Milk Sold Per Cow	23,866	23,700	24,606	25,068	24,366
Milk Price Per Cwt.	\$17.95	\$18.24	\$18.38	\$18.35	\$18.24
Total Crop Acres	803	837	895	766	826
Crop Acres Per Cow	2.4	2.2	2.2	2.1	2.2
Crop Acres Per Worker	102	101	105	103	103
Feed Cost Per Cow	\$1,783	\$1,696	\$1,710	\$1,741	\$1,733
Feed Cost Per Cwt.	\$7.47	\$7.16	\$6.95	\$6.95	\$7.11
Feed as a Percent of Milk Sales	41%	39%	37%	38%	39%
Feed & Crop Expense Per Cow <sup>1</sup>	2,139	2,033	2,047	2,067	2,073
Feed & Crop Expense Per Cwt.	\$8.96	\$8.58	\$8.32	\$8.25	\$8.51
Machinery Cost Per Cow <sup>2</sup>	\$945	\$898	\$848	\$912	\$897
Machinery Cost Per Cwt.	\$3.96	\$3.79	\$3.45	\$3.64	\$3.68
Labor & Family Living Per Cow	\$983	\$960	\$965	\$935	\$958
Labor & Family Living Per Cwt.	\$4.12	\$4.05	\$3.92	\$3.73	\$3.93
Assets Per Cow	\$13,779	\$12,114	\$12,197	\$14,402	\$13,078
Debt Per Cow	\$4,073	\$3,927	\$3,715	\$3,038	\$3,681
Net Worth Per Cow	\$9,706	\$8,187	\$8,482	\$11,364	\$9,397
Percent Return on Assets <sup>3</sup>	-0.9%	-0.3%	1.6%	2.5%	0.8%
Percent Return on Equity <sup>4</sup>	-1.0%	-0.1%	2.6%	3.3%	1.4%

<sup>1</sup> Feed & Crop Expense = Feed + Seed & Plants + Fertilizer + Chemicals & Spray

<sup>2</sup> Machinery Cost = Machinery Repairs + Custom Hire + Fuel & Oil + Machinery & Equipment Depreciation

<sup>3</sup> Return on Assets = (Net Earnings + Interest) / Average Farm Assets

<sup>4</sup> Return on Equity = (Net Earnings + Interest) / Average Farm Net Worth

TABLE C-4.

## 2015 COST OF PRODUCING MILK BY PROFIT GROUPS

	BOTTOM 25%	ALL FARM AVERAGE	TOP 25%
	DOLLARS PER CWT.		
Feed	\$7.47	\$7.12	\$6.94
Labor	3.48	3.27	2.94
Interest	0.53	0.47	0.35
Trucking (Marketing & Hauling)	0.96	0.97	0.95
Crop Expenses	1.49	1.40	1.30
All Other Expenses	7.57	6.77	6.16
Adjusted Cash Operating Expenses	\$21.50	\$20.00	\$18.65
+ Depreciation	1.53	1.44	1.64
+ Family Living	0.66	0.69	0.83
Total Costs	\$23.69	\$22.13	\$21.12
- Non-milk Income <sup>1</sup>	4.43	3.77	3.73
Net Cost of Production <sup>2</sup>	\$19.26	\$18.36	\$17.39

<sup>1</sup> Nonmilk income includes accrual basis cattle, crop, other income and farm income.

<sup>2</sup> Before any return on equity

TABLE C-5.

## 2015 CASH MARGINS BY PROFIT GROUPS

	2011	2012	2013	2014	2015
Bottom Profit Group					
Actual Milk Price	\$21.61	\$19.81	\$21.25	\$25.20	\$17.95
Break-Even Milk Price	21.59	20.43	21.48	22.48	19.37
CASH MARGIN	\$0.02	\$-0.62	\$-0.23	\$2.72	\$-1.42
Top Profit Group					
Actual Milk Price	\$21.24	\$19.70	\$21.18	\$25.41	\$18.35
Break-Even Milk Price	16.21	15.82	18.04	19.02	17.28
CASH MARGIN	\$5.03	3.88	\$3.14	\$6.39	\$1.07

TABLE C-6.

## 2015 RESERVE DEBT CAPACITY BY PROFIT GROUPS

	BOTTOM 25%	ALL FARM AVERAGE	TOP 25%
	DOLLARS PER COW		
Debt Capacity	\$1,795	\$3,361	\$5,563
- Capital Debt	4,184	3,390	2,793
RESERVE DEBT CAPACITY	\$-2,389	\$-29	\$2,770

TABLE D-1.

## 2015 DATA BY REGIONS — EARNINGS WORKSHEET

	REGIONS		
	NEW YORK	NEW ENGLAND	ALL FARMS
Number of Farms	327	160	487
Average Number of Cows	379	368	374
<b>Receipts</b>	<b>DOLLARS PER COW</b>		
Milk Sales	\$4,489	\$4,379	\$4,444
Cattle Sales	545	466	529
Crop Sales	148	60	120
Government Payments	56	115	75
Other	126	160	138
<b>CASH RECEIPTS</b>	<b>\$5,364</b>	<b>\$5,180</b>	<b>\$5,306</b>
<b>Accrual Adjustments</b>			
+ Change in Inventory-Raised Livestock	\$63	\$46	\$58
<b>VALUE OF FARM PRODUCTION (a)</b>	<b>\$5,427</b>	<b>\$5,226</b>	<b>\$5,364</b>
<b>COST OF GOODS SOLD</b>			
Chemicals & Sprays	\$59	\$31	\$50
Custom Hire	184	172	180
Purchased Feed	1,713	1,774	1,733
Fertilizer & Lime	159	179	165
Freight & Trucking (Marketing)	238	233	237
Gasoline, Fuel & Oil	165	167	166
Hired Labor	797	801	797
Seed & Plants	137	98	124
Supplies	288	285	287
Veterinary, Medicine & Breeding	209	194	205
Cow Replacements	5	2	4
<b>Total Cost of Goods Sold</b>	<b>\$3,954</b>	<b>\$3,936</b>	<b>\$3,948</b>
<b>Gross Margin</b>	<b>\$1,473</b>	<b>\$1,290</b>	<b>\$1,416</b>
<b>OVERHEAD</b>			
Insurance	72	70	72
Interest	123	101	115
Rent	115	101	110
Repairs	365	318	350
Property & Misc. Taxes	78	49	69
Utilities	107	131	115
Other	91	102	96
<b>Accrual Adjustments</b>			
Depreciation	344	367	351
<b>Total Overhead Expenses</b>	<b>\$1,295</b>	<b>\$1,239</b>	<b>\$1,278</b>
<b>Total Farm Production Costs (b)</b>	<b>\$5,249</b>	<b>\$5,175</b>	<b>\$5,226</b>
<b>NET FARM EARNINGS (a) - (b)</b>	<b>\$178</b>	<b>\$51</b>	<b>\$138</b>
+ Net Nonfarm Income	44	42	44
- Family Living & Income Taxes	169	166	168
<b>NET HOUSEHOLD EARNINGS</b>	<b>\$53</b>	<b>-\$73</b>	<b>\$14</b>

Note: Expenses adjusted for changes in accounts payable, prepaid expenses and supply inventories to remove the effects of tax planning and reflect only one year's expenses

TABLE D-2.

## 2015 DATA BY REGIONS — BALANCE SHEET SUMMARY

	DECEMBER 31, 2015		
	REGIONS <sup>1</sup>		
	NEW YORK	NEW ENGLAND	ALL FARMS
Number of Farms	327	160	487
Average Number of Cows	379	368	374
	ASSETS PER COW		
Cash & Accounts Receivable	\$568	\$482	\$539
Feed & Crop Inventory	1,216	1,062	1,162
Supplies & Prepaid Expenses	216	274	235
Other Current Assets	57	65	59
TOTAL CURRENT ASSETS	\$2,057	\$1,883	\$1,995
Dairy Livestock	\$2,419	\$2,289	\$2,372
Machinery & Equipment	2,276	2,358	2,293
Other Intermediate Assets	681	683	677
TOTAL INTERMEDIATE ASSETS	\$5,376	\$5,330	\$5,342
Farm Real Estate	\$5,165	\$5,516	\$5,279
Other Fixed Assets	429	535	462
TOTAL FIXED ASSETS	\$5,594	\$6,051	\$5,741
TOTAL ASSETS	\$13,027	\$13,264	\$13,078
	LIABILITIES PER COW		
Accounts Payable	\$78	\$96	\$85
Farm Credit Short-Term Loans	144	235	173
Other Current Liabilities	483	445	467
TOTAL CURRENT LIABILITIES	\$705	\$776	\$725
Farm Credit Intermediate Term	\$1,340	\$987	\$1,215
Other Intermediate Liabilities	222	283	240
TOTAL INTERMEDIATE LIABILITIES	\$1,562	\$1,270	\$1,455
Farm Credit Long-Term Real Estate	\$1,454	\$1,121	\$1,353
Other Long-Term Liabilities	145	173	148
TOTAL LONG-TERM LIABILITIES	\$1,599	\$1,294	\$1,501
TOTAL LIABILITIES	\$3,866	\$3,340	\$3,681
	NET WORTH PER COW		
OWNER'S NET WORTH	\$9,161	\$9,924	\$9,397
TOTAL LIABILITIES & NET WORTH	\$13,027	\$13,264	\$13,078
PERCENT NET WORTH	70%	75%	72%

<sup>1</sup>Regions are divided by state not Federal Milk Orders.

TABLE D-3.

## 2015 DATA BY REGIONS — EVALUATION FACTORS

	REGIONS <sup>1</sup>		
	NEW YORK	NEW ENGLAND	ALL FARMS
Number of Farms	327	160	487
Average Number of Cows	379	368	374
Worker Equivalents	8.36	7.53	8.00
Cows Per Worker	45	50	47
Pounds of Milk Sold Per Worker	1,116,550	1,163,777	1,134,300
Pounds of Milk Sold Per Farm	9,334,358	8,763,241	9,111,895
Pounds of Milk Sold Per Cow	24,683	23,554	24,366
Milk Price Per Cwt.	\$18.19	\$18.60	\$18.24
Total Crop Acres	850	771	826
Crop Acres Per Cow	2.3	2.1	2.2
Crop Acres Per Worker	102	104	103
Feed Cost Per Cow	\$1,713	\$1,777	\$1,733
Feed Cost Per Cwt.	\$6.94	\$7.54	\$7.11
Feed as a Percent of Milk Sales	38%	41%	39%
Feed & Crop Expense Per Cow <sup>2</sup>	\$2,067	\$2,085	\$2,073
Feed & Crop Expense Per Cwt.	\$8.37	\$8.85	\$8.51
Machinery Cost Per Cow <sup>3</sup>	\$890	\$916	\$897
Machinery Cost Per Cwt.	\$3.61	\$3.89	\$3.68
Labor & Family Living Per Cow	\$963	\$955	\$958
Labor & Family Living Per Cwt.	\$3.90	\$4.05	\$3.93
Assets Per Cow	\$13,026	\$13,264	\$13,078
Debt Per Cow	\$3,866	\$3,340	\$3,681
Net Worth Per Cow	\$9,160	\$9,924	\$9,397
Percent Return on Assets <sup>4</sup>	1.4%	-0.3%	0.8%
Percent Return on Equity <sup>5</sup>	1.9%	0.3%	1.4%

<sup>1</sup> Regions are divided by states not Federal Milk Orders.

<sup>2</sup> Feed & Crop Expense = Feed + Seed & Plants + Fertilizer + Chemicals & Spray

<sup>3</sup> Machinery Cost = Machinery Repairs + Custom Hire + Fuel & Oil + Machinery & Equipment Depreciation

<sup>4</sup> Return on Assets = (Net Earnings + Interest) / Average Farm Assets

<sup>5</sup> Return on Equity = (Net Earnings + Interest) / Average Farm Net Worth



## GLOSSARY

### Net Farm Income

A measure of farm profitability in terms of cash flow, net farm income reflects the ability of a farm business to meet its cost of production through cash income. It is equal to:

$$\text{Cash Receipts} - \text{Adjusted Cash Operating Expenses}$$

### Adjusted Cash Operating Expenses

Cash farm operating expenses adjusted to reflect 12 months of operation and to remove the effect of tax planning. Adjustments account for changes in supply inventories, accounts payable and prepaid expenses. Operating expenses do not include family living costs or capital expenditures.

### Net Household Earnings

An accrual measure of overall household earnings, reflecting all revenues and costs, including both farm and non-farm sources. It is equal to:

$$\begin{aligned} &\text{Net Farm Income} \\ &+ \text{Change in Accounts Receivable} \\ &+ \text{Change in Production Inventories} \\ &+ \text{Net Nonfarm \& Noncash Income} \\ &- \text{Depreciation} \\ &- \text{Family Living Expenses \& Taxes} \end{aligned}$$

### Return on Assets

Measures profit earned relative to total farm assets, including assets financed with debt and those financed with farm equity. Return on assets is equal to:

$$\frac{\text{Net Earnings} + \text{Interest Expense}}{\text{Average Assets}}$$

### Return on Equity

Measures profit earned relative to a farmer's equity investment in the farm operation. Return on equity is equal to:

$$\frac{\text{Net Earnings} + \text{Interest Expense}}{\text{Average Net Worth}}$$

### Debt Capacity

The maximum amount of capital debt that can be repaid from a farm's cash flow, the calculation of debt capacity is described in the summary.

### Reserve Debt Capacity

The amount of additional capital debt (beyond that already incurred) that a farm can service from cash flow. Reserve debt capacity represents a farm's buffer against financial adversity. It is equal to:

$$\text{Debt Capacity} - \text{Capital Debt}$$

### Overhead Costs

Costs that do not vary with a change in production output, such as depreciation, interest, repairs, taxes and insurance, etc.



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